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THE PREOPERATIVE PREPARATION OF PATIENTS FOR BILIARY TRACT SURGERY*

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TULSA

This subject in its various phases has been exhaustively discussed in the past. However, after scanning the recent literature and above all, noting the prevailing lack of attention to the details of such preparation, the conviction has been forced that emphasis upon it would be timely.

The profession has long since recognized the vital necessity of careful preparation of surgical diabetics. No conscientious doctor would essay surgery on a diabetic patient without a painstaking attempt to control the diabetes itself during and after the operation. In diabetes as in many cases of intestinal obstruction it has been realized that some delay to properly prepare a patient is not only justified but pays dividends in decreased mortality. Since biliary tract surgery is only very rarely of an emergency character, ample time for preparation may be taken.

For years the danger of surgical procedures on jaundiced patients or those newly recovered from jaundice has been emphasized so that today it is common practice to give intravenously calcium chloride or lactate, transfusion, hemostatic sera, radium applications over the spleen, etc., to increase the coagulability of the blood, decrease bleeding time, and so avoid the catastrophe of hemorrhage so feared in such cases. Too, infusion, hypodermoclysis, proctoclysis of glucose solution have been advocated and used. This paper has as its aim the emphasizing of adequate preoperative preparation for all biliary tract operations whether the patient be jaundiced or not and including cases that have never been jaundiced.

It is generally admitted that sooner or later in the presence of chronic cholecystic disease, with or without stones, hepatic reaction occurs', even tho no obstruction be present. For this reason every case of cholecystitis must be considered as a possible case of associated hepatitis and treated accordingly. We, therefore, believe that all cases involving biliary tract surgery, from a simple chronic cholecystitis without stones and a history of brief duration, to the jaundiced, cholemic patient with a history of long continued disease should be handled preoperatively with the view of protecting the liver parenchyema and bringing it up to maximum efficiency under the existing conditions prior to operation.

The general preoperative care of patients should be so well known that to here call attention to the need for dental hygiene, insurance of freedom from pulmonary infection, estimation of kidney function, etc., would be boring and unnecessary. However, since most cases of biliary tract disease of any duration, and particularly those who have had obstructive phenomena, present more or less impairment of kidney function and often of cardiac function it is mandatory that the

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exact capabilities of these organs be determined prior to operation. The services of the internist are here very valuable and in addition serve to divide the responsibility. Sufficient rest in bed for a weakened myocardium with digitalis, as indicated, often means the difference between a successful outcome and a mortality. A renal function test in all cases and determination of urea nitrogen and creatinine in the blood in most cases is obligatory. Here again, rest, fluids, proper diet, and in certain cases, glucose solution intravenously for a sufficient period prior to surgery, prevents many a disaster.

The majority of these patients are constipated and have been for long periods. It seems folly to purge them vigorously, deplete them, depress the intestinal musculature with certain drugs or make it over-irritable with others just prior to operation. Many have spastic colons, often as a result of the diseased biliary tract; appropriate treatment relieves them or at least helps them until surgery has been done when a definite plan of treatment can be carried out as long as necessary. One of the important functions of the liver is the detoxication of material absorbed from the intestinal tract. This is done incompletely by a damaged liver, thereby depressing the general health, or if done completely, the extra burden imposed on already impaired liver cells by intestinal stasis is great and predisposes to increased liver damage. The intelligent handling of constipation, therefore, for some time prior to operation—if at all possible — materially assists toward a favorable outcome of surgery. If this is impossible due to urgency of a case, at least depletion and harmful interference with the intestinal musculature can be avoided by using repeated oil enemata, carefully given.

A point which may well be stressed and to which insufficient attention is given is the intelligent reduction of excess weight. "Fair, fat, and forty," particularly the "fat and forty," portion is true in the majority of cases. When time permits, a reduction in weight to a figure approximately the normal, of course, unaccompanied by exhaustion and dehydration, is most valuable from the standpoint of easier and gentler surgery as well as increased ability to stand surgery. Another advantage particularly worth considering in this era of spinal anesthesia is the lessened danger of the Trendelenberg posture. It has been pointed out that in fat people with mesenteries weighty with adipose tissue, the Trendelenberg posture so necessary after induction of spinal anesthesia causes the impingement of the heavy intestines against the diaphragm and so embarasses respiration and increases the liability of vomiting.

The administration of sodium phenoltetraiodophthalein or its isomer either intravenously or orally immediately before operation seems poor practice. At least three or four days and preferably longer should intervene, for while the dye seems relatively non-toxic it does impose an added burden on the liver cells in its elimination and, as has been mentioned before, at the time of operation the liver should be in as good a condition as it is possible to obtain. Incidentally, in cases of severe jaundice, it is felt that the administration of the dye is not devoid of danger. Dick and Wallace[7] have shown that there is a danger of causing a pancreatitis as well as the exertion of a direct toxic effect on the overwhelmed liver cells. Besides, in such cases little or no diagnostic information is obtained, so that reliance must be placed on history and clinical signs, duodenal drainage, etc.

In the consideration of the possibility of hemorrhage in biliary tract surgery, it is believed that regardless of jaundice present or past a careful estimation of the coagulation and bleeding time should be made on all cases. There is always the possibility of a latent jaundice. In fact, when the coagulation or bleeding time is abnormal in the absence of jaundice or a history of jaundice, the icterus index or Van den Bergh test will often reveal latent jaundice. Several years ago it was the humiliating experience of one of us (B.W.) to operate on a young lady with gall stones who had never been jaundiced without, thru some misunderstanding, a coagulation or bleeding time. The skin incision was made and the patient then had to be sent back to her room with tight abdominal compresses because of an uncontrolable ooze which was completely stopped only after intravenous calcium chloride, and application of radium over the spleen. Subsequent check showed an icterus index of 10, coagulation time 15 mins. and a bleeding time of hours. All cases with jaundice should receive some form of calcium therapy, as 15 grs. of calcium chloride for three consecutive days prior to operation, given intravenously and, of

course, 5 to 10% dextrose solution. Ravdin[2] has demonstrated that intravenous dextrose solution will reduce the coagulation time often within 20 mins. after injection and maintain the reduction in many cases as long as 6½ hours. He puts all his faith in glucose solution and disparages the use of calcium chloride. However, at this time it is felt that since careful administration of calcium chloride intravenously is not harmful it should still be used in addition to glucose solutions. In toxic, depleted cases or in anemic states whole blood transfusions of 250 c.c. repeated if necessary, not only reduce the tendency to hemorrhage materially but are wonderfully stimulating in their effects.

What is believed to be the most valuable single measure in the operative preparation of these cases has been reserved till last, *namely*, the adequate administration of carbohydrates and sufficient fluids. A prime function of the liver is the storage of glycogen and its ability to do this depends on many factors the discussion of which, here, would be too time consuming. It may be said, however, that the functional efficiency of the liver may be roughly gauged with certain limitations by its ability to store glycogen. Again, it has been shown that the power of the liver cell to regenerate is tremendously influenced by the amount of carbohydrate absorbed. Further, it has been demonstrated that the resistance of the liver cells to injury varies with the amount of glycogen contained and that general anesthetics—chloroform and ether in particular—damage liver cells more rapidly and completely in the absence of glycogen than when it is present in ample amounts; this fact should be noted carefully by those who persist in the use of ether anesthesia in cases that have suffered advanced liver damage. Finally, since the blood sugar level is maintained solely or almost solely by mobilization of glycogen from the liver, it can readily be seen that a hypoglycemic state may result unless the liver supply of glycogen be maintained during the added strain of surgical procedure. These rather rambling statements serve to indicate in a hazy way the physiologic basis for preoperative pushing of carbohydrates whether in the form of a high carbohydrate diet in the good operative risks or in the use of dextrose solutions intravenously over periods increasing in length as the gravity of the case increases. A full discussion of the physiology of this treatment was given by Ravdin in the A. M. A. Journal, and an admirable discussion of carbohydrate metabolism appeared recently in International Clinics[4]. It is believed that 2000—4000 c.c. of 5 to 10% glucose solution intravenously per 24 hour period should be given to all cases with evidence of marked liver damage. The amount and concentration to be given depending on the degree of dehydration and caloric intake needed. The fluid is important both to relieve any dehydration present and also because it has been shown that the liver needs adequate fluid in order to store glycogen. The milder cases of chronic cholecystitis do well on a high carbohydrate diet for at least three days prior to operation with plenty of fluids.

It is fully appreciated that an acutely jaundiced patient whose icterus index is stationery or increasing cannot be permitted to go without decompression of the biliary apparatus while days of preparation pass, such cases can truly be considered emergencies. However, even they are materially benefited by preoperative intravenous glucose kept up until the time of operation (and thru and after it).

SUMMARY

Attention is directed to the necessity of careful preparation of all patients who are to undergo biliary tract surgery. Emphasis is laid on the importance of such preparation for cases who have never been jaundiced as well as those that have.

It is felt that proper preoperative care includes a most careful estimation of kidney and heart function in addition to general care and proper relief of intestinal stasis.

The administration of iso-iodeikon or iodeikon just prior to operation is decried, as is their use in cases where aid to diagnosis cannot be expected through such use. All cases, disregarding presence or absence of jaundice, should be investigated as to the danger of hemorrhage and latent jaundice so guarded against. Calcium chloride intravenously, dextrose solution and transfusion are advocated to exclude the danger of hemorrhage.

The preoperative use of carbohydrates by diet and intravenous glucose in conjunction with fluids is most strongly urged in all cases, manner of administration and

amount to be determined as indicated in each individual case.

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DISCUSSION: *Dr. Horace Reed,* Oklahoma City, Oklahoma.

It has not been very long ago when considering an operation upon a patient that we gave a great deal of thought to the consideration of the heart. The wise surgeon of today thinks less of the heart and more of the liver. We have learned through bitter experience of the condition of the liver and its power to function under stress that it determines the outcome of the patient. Crile was the one who emphasized that in a big way. He applied heat to the liver, not only before the operation but during the operation. The study of the liver and its action in diabetes has informed us that liver function and liver stress can be controlled largely by the pre-operative preparation. If the liver is well stored with glycogen, it can take care of a lot of toxemia that it otherwise could not do. Dr. Clinton's paper leaves very little constructive criticism and I can think of nothing of a destructive nature. I have a few thoughts that I might mention. I have learned to respect the mental attitude of the patient when he is approaching an operation. I dislike to operate upon a gall bladder case which is frightened. I do not know just what that effect is, but the liver is out of fix. There is evidence afterward, that we associate with a disturbed liver function, perhaps, it is because the liver before operation has not been properly prepared. I strive with all my might to try to keep the patients' minds off the morbid thoughts that they would otherwise naturally have, and I try to assure them, try to point out to them the wonderful condition in which they will be after the operation. I try to keep them in the proper mental attitude, so that they will function normally before they approach the test. Hence in these liver patients, I stress the fact that they should live their normal lives as nearly as possible, partake of wholesome foods and drink more water than they are normally in the habit of drinking. When we resort to the method of introducing glucose and I believe in it thoroughly, I know of no material which saves more lives when properly used, but when used as a preparation before operation, it tends to upset the patient's mental condition, therefore I prefer not to use it. I insist that the patient eat wholesome foods rich in carbohydrates, and I suggest to the husband, if the patient is married, or to the beau if the patient is a bachelor girl, that he might send around a box of choice candy. The same thing is true in the diabetic patient, except I lean most heavily on the internist. There are those who are trained in the management of diabetes, and I always prefer to have my internist friend care for the diabetic. I do not fear to operate upon a diabetic, if he has been in the hands of an internist who knows his business. I was skeptical about this procedure, until I heard the master of diabetes, Joslin, three or four years ago advise us to place the diabetic in the hands of the trained internist.

As to hemorrhage: We have not been in the habit of routinely taking the coagulation test in the gall bladder case, unless he is jaundiced. If the coagulation time is 5 or 6 minutes, we try to bring that down. We have not encountered any great difficulties by that manner of handling the patient.

This is a timely paper, because it has been proven that the liver can be brought up to a high standard of resistance to the point where it will function, and unless we can bring it to that point, we had better defer the operation until a more timely day.

We should adopt the slogan "Not what is the condition of the patient's heart, but what is the condition of the liver."

Dr. L. J. Starry, Oklahoma City, Okla.

I think that it is an extremely healthy sign in a sectional meeting of this type where some emphasis is placed on pre and post-operative treatment. It has been the custom to emphasize the operative technique whenever we considered any surgical subject. I congratulate Dr. Clinton and Dr. Ward on bringing this paper on pre-operative care. It is of the utmost importance. Many times the fate of the patient is decided in the week or the three or five days previous to the operation.

We know of course, that patients may

be divided into two classes: those who need emergency operations and those who do not need emergency operations. Those who need emergency surgery are quite in the majority. It is of the utmost importance in biliary surgery to strenghten the function of the liver previous to the trauma of an operation.

Dr. Benj. W. Ward: Closing Discussion:

I thank Dr. Reed and Dr. Starry for their discussions of our paper. We agree with Dr. Read in his attitude in regards to the mental treatment of the patient. We agree too, that the use of the introduction of glucose intravenously tends to excite in the patient's mind some apprehension as to their operative procedure, and for that reason we with-hold such treatment except in those cases, where the history of the case indicates there has been a long standing infection and necessarily some involvement and retraction of the hepatic tissue.

In regard to hemorrhage—Dr. Clinton mentioned an embarrassing experience, and I might say that experience happened to me. If we have operated on a patient and had to send the patient back to his room after making a skin incision, it has certainly been most embarrassing. I believe that it will be routine procedure after such an incident in biliary conditions to take a bleeding time. So in all biliary tract surgery, let us take a coagulation and bleeding time.

HEALTH, MUSIC AND PROSPERITY

Under the title of Health, Music and Prosperity, a magazine primarily devoted to professional musicians and to the "homes of progressive people where musical culture is looked upon as an indispensable life asset" has distributed a pocket size "normal food chart advocated by noted physicians, food experts and nutritional chemists." This document alleges that "music has an important bearing upon the health and prosperity of all. Nothing excels music in keeping up the spirits. The tired business man who can come home and spend an hour at the piano keyboard, instead of burning up his energy and initiative with worry, is far better equipped to meet the problems of tomorrow."

This sounds like commendable advice, particularly when it is properly discounted for the mild hyperbole that any enthusiast may be pardoned in expressing with regard to his vocation or to his favorite avocation. However, the admonitions do not end with experiences derived from the domain of music. The chart[1] proceeds with this vigorous reminder: "Make up your mind whether you are to have a starch meal or a protein meal. Never mix the two groups at the same meal." This seems to be a survival of the idea fostered by many food fanatics intimating that " a mixture of certain foods is certain poison." In a discussion of health superstitions, the author[2] has recently indicated how the belief that it is dangerous to eat fish and celery at the same meal is one of the popular food combination ideas, others being that it is dangerous to eat lobster and cream, strawberries and cream, protein and carbohydrates, pickles and peaches, and indeed all sorts of other combinations, according to individual notions. Our daily bread—the staff of life for countless thousands—is a mixture of proteins and starch. Are we to believe that the "experts" would interdict bread or any of the comparably composed cerals that form the main source of the world? According to the musically promoted advice, the idea is "not to mix the foods that produce noncompatible digestive solutions." By way of interpretation we are told that "carbohydrates require an alkaline solution provided by nature for digestion. Meats and acid fruits require a natural acid solution." As a matter of fact, modern biochemists assure us that starch (and sugar) digestion can proceed favorably in a medium that is practically neutral (ph 7.0): and, of course, any tyro in the subject knows that proteins undergo a series of digestive changes in the alimentary tract, some in the acid medium of the stomach, others in the quite different reactions of the intestine. One might almost suppose, from the musical warning, that nature had made a serious mistake in the organization of our marvelous digestive functions. Nor is this all. We are specifically reminded by the chart that "milk is a protein" and should be consumed with this limitation in mind. What will the dairy industry reply to this oversight of the carbohydrate milk-sugar, which constitutes about one fourth of all the energy in "nature's most nearly perfect food?" Even skimmed milk cannot get away from its constituent lactose. And then there is the warning that fruit salads should be taken only with protein meals. But why go further? There comes the reminder "Shoemaker, stick to your last." Before modern scientific dietetics anybody was entitled to a hearing on the subject of foods. Now scientists realize the special knowledge that is necessary for sound judgment, but quacks exploit the public ignorance and the public's interest. —Jour. A. M. A., July 25, 1931.

AMAUROSIS IN EPIDEMIC ENCEPHALITIS

Irving J. Sands, New York (Journal A. M. A., April 13, 1929), reports an unusual case of epidemic encephalitis. The diagnosis was arrived at after a careful evaluation of all the presenting signs and symptoms. The definite history of exposure to infection, the rapid onset of impairment of vision, the multiplicity of lesions and the changing signs and symptoms led to the conviction that the disease process was of an inflammatory, disseminated, irritative nature, rather than of a neoplastic type. While the roentgenogram showed a calcified pineal shadow, Sands felt that he was not dealing with a true internal hydrocephalus caused possibly by an enlarged pineal gland. The presence of papilledema was an annoying symptom. It is not commonly encountered in cases of epidemic encephalitis. The duration of amaurosis in Sands' patient makes the case particularly unusual. She was totally blind for twelve days. The administration of typhoid vaccine in epidemic encephalitis, especially in the presence of only a slight elevation of temperature, has proved helpful.

POST-OPERATIVE CARE OF THE PATIENT

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HOMINY

Of the three phases of surgery, preoperative care, the operation itself, and post-operative care, the most neglected and most important phase is post-operative care. Too many surgeons forget that their work and responsibility is only partly over when they have finished operating. Many an excellent operator is an indifferent post-operative fighter and many an excellent operation is in vain because it is needlessly lost in the convalescent room. It is often the case that a well performed operation will have a long, painful, dangerous convalescence and an imperfect result, while a poorly done, rather bungled operation will have a safe and speedy recovery with a perfect result due to post-operative care. Bartlett says that the need of after-treatment is in inverse proportion to the quality of work done on the operating table. (Maybe this is the reason I have given it attention.)

Of course this subject is too extensive to even scratch the surface in the short time allowed here. It will be the objective of this paper to remind us of our duty to stand by and help after the operation as well as to point out a few post-operative conditions that may be prevented.

There is an old adage that every surgeon should be operated on in order to realize the suffering the patient undergoes through his own work. It is said that the memory of pain is short lived, but if we can alleviate to any extent the severe agony of an operation, we have done a great service to the patient who has our confidence and affords us our financial income.

In no phase of surgery is more individuality shown than in post-operative care. Many great surgeons vary greatly in this, and seem to have the same results. What we should keep in mind is that no iron-clad rules work. There is a difference in degree of toxicity, ability to stand pain, and extensiveness of surgical work done on each class of operations. We should not attempt to follow a definite routine eration itself calls for correct mechanical work but the post-operative care calls for common sense. It is this phase of surgery that makes it imperative that operators should first be physicians in the true sense of the word.

The post-operative care begins when the last suture is tied, so our first consideration is a safe and comfortable dressing, and next, attention to prevent possible iodine or ether burns. Then as the patient is returned to his room he begins the immediate recovery of the effects of the anesthesia and the operation. We should place ourselves in the place of our patients in our own minds in trying to take care of what may seem small details in making our patients comfortable. Small discomforts added to the discomfort and on any certain class of operation. This opshock that accompany all operations get to be great discomforts to a patient just recovering from an operation. There is a psychic condition about every operative case that is not allayed at such times by psycho-analysis, but by attention to all the details of their comforts.

The average case operated under any general anesthetic wakes up with three prominent symptoms; nausea, thirst, and pain. Nausea may be present in other cases when there are various symptoms apparent, but in a post-operative case there is usually accompanying the nausea a feeling that no medical term describes. There is a general depression that one of my patients described to me as a kind of "soul sickness." Drugs and drinks do little to settle this nausea. Unless contraindicated because of some gastro-intestinal operation a gastric lavage in the form of a glass of warm water given as fast as the patient can drink it is often very helpful. It is promptly vomited up with usually some relief. In emergency operations where there has been no opportunity to prepare the patient for the anesthetic, care must be taken to see that none of the

vomited material chokes the pharynx or is sucked down the bronchial tubes.

Thirst is best taken care of by giving ordinary tap water in small sips as soon as the nausea will permit, if not contra-indicated by a serious abdominal condition. Cracked ice held in the mouth does not relieve the thirst so well and sips of ice water often cause an irritation of the stomach. Dehydration follows most operations and is felt more by thin patients than by the plethoric type. The fundamental physiological principles to be remembered is that water is not absorbed by the walls of the stomach, nor to any great extent until it reaches the colon. In patients where nausea persists after drinking considerable water by mouth, the thirst is not alleviated. This condition is understood by most surgeons and too often we order a proctoclysis and let it go at that. If we would take time to investigate we would be surprised how often we are disappointed by this process, and how often we have only a wet bed and no results. In border line cases where treatment of dehydration is not too imperative, I prefer retention enemas, but in any serious case hypodermoclysis is the method of choice. For this purpose ordinary tap water, sterilized, is the water of choice.

Pain is the principal symptom our employer, the patient, wishes to avoid. For this symptom morphine is the drug of choice. In this case our post-operative treatment begins just before the operation. The average adult patient should be administered 1-4 grain of morphine and 1-150 grain of atropine before his anesthesia. This makes him take his anesthetic better, has a tendency to prevent post-operative shock and makes his recovery from the anesthetic, and immediate effects of the operation more easily borne. This may be used as a routine but the second dose should not be. Every possible effort should be made by the physician to keep the patient from depending upon frequently repeated "shots" of morphine. Individuals vary greatly in the pain resisting functions of their nervous system. Every doctor has seen cases that have undergone the same treatment where the big "he man" will apparently suffer the tortures of the damned, and some "sissy boy" or "chronic invalid" woman will stand the identical treatment with great fortitude. The real physician realizes that if a patient thinks he is suffering he is suffering, and that a psychic pain is just as acute or more so than just physical pain without the psychic element. In these psychoses cases, and very nearly all are to some extent, I find that sodium amytal administered orally per capsule is a great boon in lessening the amount of morphine given and in adding to the relief of the patient during his convalescent days. Before any drug is given for pain, after the immediate effects of the operation and anesthetic are over, a careful search should be made for its cause. Much depends upon a thoughtful and considerate nurse. Pain is often relieved by a simple change in posture, the cutting of a tight bandage, the drying or straightening of the bed clothes, or some other little attention.

As I have mentioned before, this subject is too vast to be covered in such a paper. Any item mentioned is sufficient for a subject of a scientific paper. My principal object is to remind you of the common-place conditions you deal with every day and to make a plea for the patient in trying to keep you from too much "routine" after-treatment. This paper is not intended to cover all of the complications that may arise from post-operative conditions, but there are a few that I would like to mention in passing, before I close.

Lung complications are common and should be mentioned. It is the surgeon's duty to see that the patient leaves the operating table thoroughly dry, and placed, and wrapped between blankets before being taken to a warm comfortable bed—a recovery room is preferable. Prevention of exposure will prevent many cases of ether pneumonia. Lung abscess is best prevented by care used with a suction machine in mouth, dental, and throat operations. The principal object is to prevent the inspiration of blood or infectious matter. Lung abscess may also be caused by the inspiration of stomach contents during the nausea period of recovery.

Hiccough is often a very troublesome complication. It is of some importance in peritonitis and serious cases of abdominal surgery. Our text books give us such remedies as holding the breath after drinking water, gastric lavage and leaving a tube in the stomach for hours.. Chloral hydrate and bromides are often suggested. Apomorphinae hypodermatically and water by mouth is a favorite with many but should not be used in

peritonitis or serious gastro-intestinal cases. In my own experience and in the experience of two surgeon friends, who are fortunate enough to have more surgery to do than I, I have found that the use of a very simple remedy suggested to me by a colleague, Dr. J. J. Fraley, has been more useful than any found in my text books. The treatment that he recommended to me was oil of cassia (oil of cinnamon), one drop on a small piece of lump sugar, every fiften minutes until the patient is relieved. In my own cases and the cases of two other colleagues to whom I have passed it on, this has been the most effective treatment. I would like to suggest this treatment but would advise you to leave no treatment untried until this serious complication is alleviated.

Parotitis is an infrequent but disagreeable post-operative condition most common in peritonitis following a ruptured appendix or pelvic operation. The prevention is to give the patient chewing gum as a routine as soon as recovered from the effects of the operation and the treatment is a radical incision after it develops. Don't think your patient lay in bed and caught the mumps after the operation.

The proper use of drainage is too much to be mentioned here, but there is no excuse for ever using a hard drainage tube in peritonitis. If a tube is properly placed in the abdomen it should be removed at least by the third day. We should remember the physiology of the peritoneum and consider that our fistulous tract has been formed in 72 hours. Fecal fistula is too much trouble to both the surgeon and patient to bring it on by pressure decubitus.

In dealing with acute peritonitis operations with drainage, I would like to again remind you that I am dealing with a subject that would fill volumes. The position recommended in these conditions is with the bed level and the patient on his abdomen if possible. Each case is individual, but with the head of the bed elevated the drainage tube does not always act as a siphon.

Care should also be taken of the wound in extensive drainage cases to see that a sea of pus is not constantly under the soiled dressing which acts as a dam to drainage and causes an irritation to the wound and the surrounding skin tissue, In such cases it is often wise to leave the wound exposed to the air with no dressing whatsoever, and order it cleaned with an antiseptic solution at intervals, however taking the precaution that the room is warm and that the patient is not thus unduly exposed.

In desperately ill cases of post-operative peritonitis, my advice would be to withhold everything by mouth from three to five days and depend upon hypodermoclysis entirely for water intake. In these cases nothing by mouth and large and frequent doses of morphine is a life saving measure. This is one part of post-operative treatment where being cruel in withholding water by mouth is a real aid in saving the patient. Withholding water also is the greatest prevention of acute dilation of the stomach gas pains and paralytic ileus.

Before I close I would like to add that country sorghum and sweet milk mixed in equal parts and used as a high injection is a most useful remedy for elimination of gas in the intestines.

There are many other complications of post-operative conditions that the scope of this paper will not permit mentioning. I hope you will pardon the attempt to cover so much in a single paper of this nature.

KRAUROSIS VULVAE

An extensive review of the literature on kraurosis and leukoplakia by William P. Graves, Boston (Journal A. M. A., April 13, 1929) indicated the difficulties arising from the conflicting terminology. A more uniform use of the nomenclature is urged, the retention of the word kraurosis in its original sense being recommended. The clinical and histologic evidence presented shows that kraurosis and leukoplakia used in the classic sense are phases of an identical process. Historical, clinical and histologic evidence further shows the intimate relationship of kraurosis and leukoplakia to cancer. The treatment of kraurosis is essentially surgical.

EXCRETION OF NEUTRAL RED IN STOMACH IN ACHYLIA GASTRICA

From a study of excretion of neutral red in the stomach in achylia gastrica, Asher Winkelstein and J. M. Marcus, New York (Journal A. M. A., April 13, 1929) conclude that neutral red is excreted into the stomach whenever free hydrochloric acid is secreted. Neutral red is invariably excreted in the false achlorhydrias. It is not excreted in true achylia gastrica, whatever the cause of the achylia may be. Neutral red gives as much information as histamine and is preferable to the latter for routine use. Neutral red is helpful in the study of the normal and pathologic physiology of gastric secretion and in the differential diagnosis of the disease producing false and true achylia gastrica. They advocate the use of neutral red in ever case in which achylia gastrica is suspected.

TETANUS, THE DIAGNOSIS, PREVENTION AND TREATMENT*

JOHN HAYNIE, B.Sc., M.D.
DURANT

Your attention is respectfully invited to a brief study of tetanus. This paper is presented in the belief that insufficient attention has been given by the general practitioner to the earlier symptoms, necessary prevention, and maximum antitoxin treatment.

Tetanus is an infectious disease caused by the bacillus tetani. It is manifested by a severe type of toxemia, which affects the central nervous system, producing marked tonic spasms of certain groups of muscles, which often begin in the muscles of the jaw, hence the name lock-jaw.

The tetanus bacillus was discovered by Nicolaire in the year 1884. Kitasata, a Japanese bacteriologist, a few years later obtained it in pure culture and demonstrated it to be the specific cause of tetanus. It is an anaerobic micro-organism which is widely distributed in nature, being a constant inhabitant of the intestinal tract of herbivorous animals. Some places are richly infested with tetanus spores, especially garden soil, manure, street, and highway dust. In morphology it is a rod shaped bacillus, the spores are extremely resistant and ordinary methods of sterilization are frequently inadequate to kill them.

The bacilli do not invade the blood stream, but they produce a soluble toxin which has a special affinity for the central nervous system: it is rapidly diffused into the system and is one of the most deadly poisons known. The toxin is absorbed at its inoculating source or wound by means of the peripheral nerve filaments and carried along the axis cylinders to the central nervous system where it is fixed in the nerve cells. The toxin is also diffused to some extent through the blood and lymph.

Tetanus is more prevalent in tropical climates than in the frigid or temperate zones. It spares neither age nor sex, however, it is more frequent in men and children owing to their being subjected to more wounds and injuries. Every wound should be considered a potential source of tetanus, even though it is common experience to see nearly all these injuries heal without developing this disease. This being true, however, should not cause us to relax in our efforts in exercising the most diligent care and using all protective measures in every wound we are called upon to treat. We should impress the public that every wound however insignificant should have proper care.

Gunshot wounds, injuries made by toy pistols, blank cartridges, fireworks, nails, and splinters, and injuries received on streets, highways, and barnyards are particularly liable to be contaminated with tetanus spores. Tetanus is in reality a wound complication. Large wounds with much destruction of soft parts, wounds of the head, spine, and extremities, and those involving joints are most likely to develop tetanus, especially if they are contaminated with dirt, particles of clothing, splinters, pieces of metal or other foreign bodies. The spores may also be carried by the ordinary house fly; also vaccine virus, catgut, gelatine, and sera may be contaminated. The last mentioned, however, is now rare, owing to the more careful manufacture and strict governmental supervision. Post operative tetanus, cord infections in the new born or following accouchment may occur. It is obvious that open wounds and clean cut wounds are not as liable to be followed by tetanus as punctured, lacerated, and infected wounds whose depth cannot be readily reached and determined. Any abrasion may be the portal of entry, and an apparently healed wound may harbor the tetanus spores.

Formerly there were many cases of tetanus following 4th of July, wounds incurred in celebrating our national Independence day, but within the last two decades, owing to the education of the public and the prophylactic measures institut-

*Read before Section on General Medicine, Oklahoma State Medical Association, Oklahoma City, Oklahoma, May 11, 12, and 13, 1931.

ed by physicians, it is rare for tetanus to develop following these injuries.

The incubation period is usually from four to ten days following a wound, but it may vary from two days to more than two months. The shorter the incubation period the more unfavorable the prognosis. The early symptoms are due to nervous excitability and consist in malaise, restlessness, chilly sensations, headaches, slight pain and stiffness in the muscles of the neck, face, and back without apparent cause, some difficulty in mastication and deglutition, frequent and painful micturition, pain and rigidity in the region of the wound, and double reflexes; slight fever may be present with an accelerated pulse rate. It is indispensable to the welfare of the patient and the satisfaction and reputation of the physician that these premonitory symptoms be recognized early, for they are rapidly followed by more serious manifestations. The muscular spasms increase, involving many groups of muscles, particularly those of the jaw, face, forehead, neck, back, abdomen, and extremities. As the disease further progresses all the foregoing symptoms are intensified, cyanosis is present and this may be pronounced, especially if the diaphragm and larynx are greatly involved. There is often thoracic oppression and agonizing pain at the base of the chest. The jaw is firmly fixed, the patient being unable to open the mouth, the abdominal muscles are rigid and board-like, the muscles of the back are greatly contracted causing opisthotonos or the body may be bent laterally.

The head is rigid and retracted, the angles of the mouth are withdrawn, giving the patient the *risus sardonicus grin*, the nostrils are distended; there may be dribbling of saliva which is often streaked with blood. The muscles of the neck stand out like whip-cords, the extremities are forcibly flexed, the arms being less involved, however, than the lower extremities. There is profuse sweating, the eyes are protruding and congested, and there is a pathetic and anxious expression on the face. The convulsive seizures may reach dreadful proportions, causing great mental anguish and physical suffering, making a picture frightful to behold.

A jar, a puff of wind, a harsh word, a sudden noise, the movement of the covering or a mere touch of the hand may throw the patient into convulsions with great pain and suffering. Patients often complain that they are held as tight as if in a vice. The spasms may be only a few daily or be almost continuously. The pulse is fast, irregular, and weak; there may be slight febrile reaction, the temperature may be normal, however, in some cases the temperature is high. The bowels are usually constipated and frequently there is retention of urine. The mind is unclouded and remains clear to the end.

Atypical cases occur, but these are dependent on the location of the wound, the period of incubation, the insidious onset, and the early limitation of muscle group involvement. These are important only from a diagnostic view point; for the treatment and prognosis varies little from that in the classical cases.

The diagnosis should be made early for the success of the treatment depends upon the prompt recognition of the disease. If doubt exists, cultures should be made from scrapings of the wound, but delay is fraught with grave danger. I have known cases and you have too that have not been recognized early and the proper treatment instituted in time to save the life of the patient. Unfortunately the diagnosis is not always easily made, however, in a well developed case following an injury or wound the diagnosis could hardly be mistaken for any other disease.

Tetanus may resemble strychnine poisoning, tetany, hysteria, and hydrophobia. These are the chief points of difference:

In strychnine poisoning the onset is more sudden. One is often able to get some history of the drug having been taken or some suspicion of suicidal intent. The convulsive seizures in strychnine poisoning are more extensive and violent and between them there is complete relaxation while in tetanus there is only a certain degree of relaxation. There is rarely any locking of the jaw or trismus, and, if it does occur, it comes on late.

Tetany affects mainly the hands and feet and the spasms are symmetrical. The fingers are extended with the distal phalanx flexed. The thumbs are flexed in the palms of the hands, the ankles and toes are also flexed, and there is no locking of the jaw. Tetany is more common in children, and usually comes on after debilitating and exhaustive diseases.

Hysteria sometimes simulates tetanus, but usually a history of nervous disorders can be obtained. The eyes are closed, the

face expressionless, and the mind apparently dull, while in tetanus, the eyes are wide open and rigidly fixed, the face anxious, and the mind bright. Hysteria usually comes on suddenly with a convulsive-like condition with crying out between the paroxysms. There is slight or no involvement of the muscles of the neck.

In hydrophobia there are no spasms of the muscles of the jaw, rigidity is not persistent and continuous, and opisthotonos is rarely observed. Usually a history can be obtained that the patient has been bitten by an animal.

The prognosis of tetanus has been a serious chapter in medical history. It has caused an appalling death rate with a mortality hitereto of almost 100%. But with proper treatment the mortality of acute tetanus has fallen to about 70% or 75%. The shorter the incubation period the more unfavorable the outlook. If the patient survives six to eight days, recovery usually takes place. When the diaphragm and laryngeal muscles are greatly involved, the prognosis is unfavorable. Death usually takes place by asphyxiation, respiratory paralysis, toxemia, cardiac dilatation, or bronchial pneumonia.

A case of tetanus is a serious reflection on the carelessness or oversight of some one, and too often this is traced to the physician. The most effective treatment of this disease is prevention. Every wound should be opened to its deepest parts, thoroughly cleansed, all devitalized and highly traumatized tissue dissected away, and all foreign materials removed: then the wound should be thoroughly swabbed with tincture of iodine, which is most lethal to the toxin and tetanus spores. Fifteen hundred units of antitetanic serum should be injected immediately intramuscularly as a prophylactic measure in all wounds of a suspicious character. The system rapidly eliminates the antitoxin, 66% being thrown off within six days and 80% at the expiration of twelve days; therefore, as long as danger exists, especially in slowly healing and suppurating wounds, the serum should be repeated every seven to eight days. "As a prophylactic measure tetanus antitoxin merits our fullest confidence." In some military campaigns of history tetanus has taken a high toll of death, but during the recent World War all wounded received prophylactic injections of tetanus antitoxin and out of 224,089 wounded only thirty-five cases of tetanus developed. This is a wonderful record of achievement when we take into consideration the environment of many of the wounded and the unavoidable delay that often existed before first aid and prophylactic injections could be given.

In assuming the care and responsibility of a patient ill with tetanus every effort should be made for the comfort of the patient. All cases should be isolated, and physicians and attendants should use proper precautions in handling them. The use of rubber gloves and other protective methods should be taken, especially in dressing the wound and handling contaminated dressings. It is of the utmost importance that a quiet, dark room be secured with a limited number of sensible attendants in charge and that they be instructed in all the details for the care and comfort of the patient. It is essential that everything be well organized and nothing left to chance. The physician must challenge the attack with heroic measures before much damage is done to the nerve cells.

We are in an age of unparalleled and amazing progress, and nothing demonstrates this more fully than the modern treatment of tetanus. We are fortunate, indeed, to have at our finger tips great and positive remedies in treating deadly ills. The prognosis, as before stated, is grave in every case and all cases are usually fatal unless the disease is recognized early and the proper treatment instituted. This responsibility should inspire energetic action and one should not be insensible to duty, but he should labor with honest zeal and painstaking care to direct the patient to recovery. Tetanus is not an alluring disease to treat, but it makes a ringing appeal to the physician and challenges him to do his best. He must act quickly and use commendable skill and initiative and be on the alert and get our bearings early, for this is a time of haste. Acute tetanus is a great emergency and no delay should occur.

To be successful one must strike promptly, vigorously, and persistently for "no tree falls at the first stroke." One gets divine joy out of doing things well, and happy is he who has the good sense to do the right thing at the right time, when there are so many pitfalls along the way.

Antitetanic serum is an imperial and sovereign remedy. But after the nerve

cells are damaged by the toxins it can do but little good. Therefore, it is of vital importance that the antitoxin be given early, for, in so doing, it neutralizes the toxins in the blood stream and neural lymphatic channels before much damage is done. Three things stand out pre-eminently in giving the antitoxin:

a. The time of giving;

b. The size of the dose;

c. The method of administration.

As soon as a patient ill with tetanus is seen 20000 units of antitetanic serum should be given intravenously and 20000 units intraspinally under proper aseptic precautions. These doses should be repeated within eight or ten hours. The second day 20,000 units should be given intravenously and 20,000 units intraspinally and these repeated within ten or twelve hours.

The third day 20000 units should be given intravenously, and, as the symptoms abate, the interval between the doses should be lengthened and reduced until recovery takes place. For children one-half the foregoing quantities should be given. The serum should be warmed to body temperature and the median basilic is the vein of choice in giving it intravenously, using a 1½ inch, 18 to 20 guage needle on a Luer syringe. It should be given intraspinally by the gravity method after the patient has been turned on the side. If opisthotonos is marked or spasms severe it is best to relex the patient with chloroform anaesthesia before making spinal puncture; 10 to 15 cc. of spinal fluid should be allowed to escape before injecting the serum. This serves to prevent an increase of pressure of the spinal fluid and allows a freer circulation of the antitoxin in the spinal canal. It is practically useless for therapeutic purposes to give the serum intramuscularly or subcutaneously on account of its slowness of action; in the former it takes 24 hours to have its maximum effect, in the latter three days, however, it may be given with profit in the region of the wound. Intraneural injections may also be made on the theory that it intercepts and destroys some of the toxins in the nerve sheaths. It is well to remember that the serum is not germicidal, it is only antitoxic, and all it can do is to detoxify the system. Before giving therapeutic doses of serum to those who have asthma and hay fever and those who have been sensitized to previous injections, it is best to test out their susceptibility by injecting ½ to 1 cc. and waiting a few minutes. If no reaction occurs it is considered safe to give. If a pronounced reaction should occur ¼ to ½ cc. of epinephrin should be injected immediately intramuscularly or subcutaneously.

The inoculating wound should receive early surgical attention. Closed and unhealed wounds should be incised under local anaesthesia, all foreign bodies and necrosed tissue removed, the wound then cleansed with iodine, hydrogen peroxide, calcium hypochlorite or Dakin solution and dressed daily. The wound area may be treated by means of the ultra-violet rays on the theory that the bacilli spores are killed by the hyperemia produced .

Rest and sleep are highly essential and to obtain these liberal doses of the sedatives and antispasmotics are necessary. Chloral hydrate, the bromides, sodium amytal, chloretone, and pheno-barbital, may be used. In fast recurring convulsions with involvement of the larynx and diaphragm 1 cc. of a 25½% chemically pure magnesium sulphate solution for each 25 pounds body weight should be given intraspinally under proper aspetic precautions. This drug has great power in alleviating the convulsions, but it must be used with care, the dose increased, diminished, and repeated when needed, but one dose every 12 to 24 hours is usually sufficient. If respiratory paralysis follows its use as sometimes happens, 5 to 6 cc. of a 5% solution of calcium chloride should be given intravenously. In the writer's hands chloral hydrate and potassium bromide have been the chief drugs used for this purpose. It is remarkable how much of these a patient with tetanus can take without harm: 20 to 40 grains may be given every two to four hours until effect. It is best to begin with the smaller dose and increase as the demands of the patient require. If the patient cannot take them by mouth they may be given by bowel. Morphine is a useful drug in many conditions, but in tetanus it must be used with extreme caution and in small doses, owing to its deleterious effect on the already embarrassed respiratory center.

The diet should be liquid and highly nutritious. If the patient cannot open the mouth enough for food, feeding may be done through a nasal tube, or by nutrient enema. A 10% glucose solution should be given per rectum or intravenously if the patient is unable to swallow. It is indis-

pensable that dehydration be prevented, and, if the patient is unable to take enough water by mouth, this should be supplied by the bowel. Two or three warm baths daily, given carefully and cautiously, soothe the patient and render much comfort. As constipation and retention of urine are common, these conditions should be looked after promptly.

SUMMARY

Every wound should receive proper care and all suspicious wounds and injuries should have prophylactic injections of antitetanic serum. The diagnosis should be made early and heroic treatment instituted at once by giving 20000 units of antitetanic serum both intravenously and intraspinally, and repeated as indicated in the foregoing. The complicating wound should receive proper surgical care. By this method of treatment no deaths have occurred in the last five cases under my care.

A physician should be a gentleman, a scholar, a leader, and a helper of mankind. He should discharge his duties with fidelity and trust. Although he often has to work under great difficulties, yet he should possess ingenuity and resourcefulness to meet ably the unexpected, and, to do this, he often has to use consumate skill and discriminating judgment. If "culture is the cream of conduct" so is a doctor's ability to work successfully under trying disadvantages the true test of his ability. To successfully direct a person through a serious illness is an achievement of the highest order.

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DIAGNOSTIC INACCURACY IN TUBERCULOSIS OF BONE, JOINT AND BURSA

Joseph E. Milgram, Iowa City (Journal A. M. A., July 25, 1931), reviews the clinical impressions that he obtained in the study of 142 cases of tuberculosis of bone, joint and bursa which were verified in the pathologic laboratory. Although the classic picture emphasizes particularly the insidious onset of joint tuberculosis, in 29.5 per cent of the cases the onset was sudden. As to the relation of trauma, nothing definite could be adjudged save that the appearance of symptoms after an unusually severe injury followed often by prolonged incapacity for labor was a frequent observation. Thirty-nine, or 26.7 per cent, of the entire group stated that the pain was severe at the onset, whereas 103, or 73.2 per cent, presented the classic picture of mild to absent pain. The insistence on mild pain in "closed tuberculosis" is not justified in this material. The variability of signs was marked, and statistical analysis of factors such as the degree of muscle spasm, muscle trophy and functional limitation was not found possible. The anatomic location often modified signs considerably. So, diaphyseal lesions exhibited cosiderable local tenderness. Thus, synovial lesions confined to distant recesses of the knee joint presented minimal signs, whereas articular destruction was characterized by obvious limitations of function on examination. The rapidity of appearance and the extend of abscess formation, for example, depended not only on fascial plane relationships but also on the personal equation of the patient and on the organism, a quantity not susceptible of mathematical expression. The monarticular or local character of surgical tuberculosis appears to be overstressed in the classic description. In this series of proved cases thirty-five, or 32.7 per cent, presented two or more lesions. In several cases this was responsible for a diagnosis of chronic infectious arthritis, corrected only after biopsy. Roentgen examination, while usually helpful, was often the reverse. In fifty-three cases, such examination was of no aid or was misleading. The appearance of free bodies in the knee, or local bone formation in uncomplicated tuberculosis of the spine, for example, resulted erroneously in the diagnosis in the one case of osteochondritis dissecans, in the other case of hypertrophic arthritis. The value of a negative tuberculin test in excluding tuberculosis in a moderately ill subject appeared to be amply confirmed in the series. However, the necessity of not accepting a report of a single dose of tuberculin as a negative report was apparent. Of all the simple diagnostic aids, a carefully controlled and repeated intradermal tuberculin test, if negative, is of great value in excluding tuberculosis. Experienced pathologists frankly admit their frequent inability to recognize tuberculous tissue grossly, particularly in the early cases that are being submitted to operation in these years. Unless the typical tubercle or caseating focus is visible, the tissue is grossly indistinguishable from that in a half dozen other chronic inflammatory conditions. A frozen section helps as a rule. In the author's series, it had not been utilized in many cases. But even with microscopic section, errors may frequently be made. In twelve cases of this series, section of a tissue removed for biopsy failed to reval the nature of the lesion. "Chronic inflammation" alone could be diagnosed. Inoculation of guineapigs, however, demonstrated the organism in each of these twelve cases. Microscopic study alone is not reliable. The isolation of the organism is the only conclusive evidence.

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SUBACUTE COMBINED DEGENERATION OF SPINAL CORD IN PERNICIOUS ANEMIA

The dietary regimen introduced recently and applied with success in the treatment of primary anemia has aroused a deep interest in this disease. Numerous reports are to the effect that the diet leads to an outstanding improvement of symptoms. B. M. Fried, Boston (Journal A. M. A., April 13, 1929), asserts that the serious character of the lesion of the spinal cord in pernicious anemia and the peculiarities of tissue repair in the central nervous system render impossible a cure in the spinal cord symptoms under the influence of the liver diet. In view of the nature of the lesion, likewise, one may not expect great improvement in the nervous symptoms even though the anemia has disappeared, and it is remarkable that any functional improvement at all should occur.

THE INJECTION TREATMENT OF VARICOSE VEINS

R. Q. ATCHLEY, M.D.
TULSA

Three-score and seventeen years ago, one ingenious Pravaz, inventor of the much used hypodermic syringe, injected into varicose veins perchloride of iron. The inspiration, the story goes, was brought about by methods used in the treatment of aneurisms. The technique consisted of injecting two or three drops at weekly intervals into the varicosities, thereby transforming them into fibrous cords through its coagulative sclerosing action.

Weinhemer, in 1884, treated 32 cases by injection with ferric chloride. Eighteen developed partial gangrene and one an abscess. The treatment was abandoned after some fatalities had occurred.

One more trial was given ferric chloride, and that by Negrette in 1880. The results were of no import.

A 5 per cent solution of phenol was used by Tanel, of Berne, Switzerland, in conjunction with a ligation proceedure of the internal saphaneous veins. This proved more successful than any before.

He was followed by Wood with ferric sulphate, giving reports of 3 out of 11 cases cured. Valet injected an iodotannic solution, reporting one cure in 300 cases. Ollier reported a death. From 1894 to 1911 there was a period of inactivity, probably due to poor technique and unphysiological solutions.

Blum renewed the activity by the shrewd observation that sodium bicarbonate, when injected intravenously in comatose diabetics, obliterated the veins. P. Linser, of Tubingen, observed the same phenomena with mercuric chloride. Both of these men applied their observations to varicose veins. Eleven years later a pupil of P. Linser, by the same name, used a salt solution, having observed that when other solutions, as that of mercuric chloride, as used by his teacher, and sodium bicarbonate, used by his predecessor, Blum, caused toxic effects. This observation was probably the introduction of the much used sodium chloride solution in the chemical obliteration of varicose veins of today.

A Frenchman, P. Sicard, of Marsailles school of medicine, analyzed an antisyphlitic solution he was using and found that he was getting venous sclerosis from its sodium carbonate content. He used this in a 20 to 40 per cent solution and proved that he could reduce varicose veins to fibrous cords without any untoward effects from the patient's standpoint. He did find, however, that if the solution was spilled he would get a slow healing slough. It was this shrewd analytical brain of P. Sicard that introduced sodium salicylate in solution for the treatment of varicose veins, observing that it was less caustic than the carbonate. It is to him that goes the credit of popularizing the salicylate treatment of varicose veins in France, Austria, England and Sweden. He has since reported 325,000 cases without a single infarction. Two cases, non-fatal, of pulmonary infarction have been reported by Meisen, of Copenhagen, in 2000 cases.

Many other solutions have been used with more or less untoward results, as quinine urethane, mercuric cyanide, metaphen, calorose, mercury bichloride, sodium citrate, iodine 30 per cent tincture and iodine as Pregel's solution and others.

At the present time the most widely used solutions probably are glucose in 50 per cent solution, sodium chloride 15 to 30 per cent solution and a mixture of equal parts of 30 per cent sodium chloride and 50 per cent dextrose solution, quinine urethane solution, sodium salicylate solution 25 per cent to 40 per cent.

The amount to inject of these solutions depends largely upon the size of the varicosity to be injected. Usually from 1 to 10 10 cc. with seldom more than 20 to 30 cc. at one sitting is used. This is especially true of sodium chloride—30 per cent, which the author has used extensively. Some advise that sodium chloride in 20 to 30 per cent solution can be used to the

amount of 50 to 60 cc. at a sitting, but this seems a large dose.

Sicard used ascending strengths and amounts of sodium salicylate ranging from 20 to 40 per cent with 3 grams as the maximum dose and the usual amounts 3 to 5 cc. at a sitting.

Glucose solution 50 to 60 per cent carries an average dosage of 5 to 20 cc. Quinine urethane solution consists of 4 grains of quinine hydrochloride, 4 grains urethane and 3 cc. distilled water. Its dose should not exceed 4 cc. at a sitting.

There is a very promising solution now being used consisting of equal parts 50 per cent glucose solution and 30 per cent sodium chloride. This solution will prove very popular, I believe, since its sloughing properties are at a minimum.

APPARATUS

The apparatus necessary for injecting varicose veins is simple.

Some writers have special tables and means to facilitate the accessability of the varicosities and procuring proper posture of the patient because both are very assential to procuring satisfactory results.

A common office operating table, with the end turned down, is sufficient. The patient stands on a small foot stool at the end of the table and the injection is made.

The syringe most suitable is a common glass, Luer type or Luer Lok, with a slip on or Luer Lok needle or 22 to 26 guage, the larger for the more viscid solutions and the 26 guage for the less viscid solutions. The needle should have a short bevel and be 1-2 inch in length. A good loosely working syringe and a sharp needle is very essential for procuring the best results. A tourniquet should be at hand to facilitate the distention of the veins, if necessary. There is used by some a ring like instrument, 3 by 1½ inches that isolates a segment of the vein, thus facilitating the concentration of the solution in the segment desired. It is called a veri-occlusor. A good light without shadows is essential. Natural northern light is preferable.

TECHNIQUE

The technique of injection is by far the most essential of all proceedures. A poor technique means poor, and a great many times disastrous results.

As stated, above, the ordinary office operating table can be used by allowing the patient to stand at its foot with the lower section turned down. A small foot stool should be placed so the patient can stand on it and sit upon the table with ease when the injection is to be made, thus allowing the emptying, to a certain extent, of the distended veins and in turn get a maximum intravenous concentration of the solution. The skin should be cleansed with alcohol and not a colored solution. McPeters and Rice and others, having proven by fluoroscopic demonstration that usually the flow of blood in varicose veins is distal and not cephalad, the site of injection should be selected at a high point so the solution will gravitate downward, thus obliterating as much vein as possible. When the needle is inserted and blood is freely aspirated, the patient is allowed to sit down (not lie down) and if the veins are not sufficiently collapsed the lower section of the table can be raised, very carefully placing the limb in a horizontal position.

If a careful technique is followed the veins many times can be evacuated by stripping and blocking by the fingers of an assistant. Extreme care should be exercised that the puncture site be not disturbed, lest the posterior wall of the vein be punctured, the wall be torn or the needle slip from it.

The solution should be injected slowly, occasionally aspirating blood into the syringe. The rate of injection should be about 1 cc. per 15 seconds for the average solution. Faster than this gives more cramp-like pain and movement of the patient and probably a spill into the tissues. As the veins become thrombosed, the sites of injection can be brought downward, leaving the veins around the ankle last because frequently when reached they are already thrombosed. Four to six inches and sometimes more can be well thrombosed with the average 5 to 1 cc. injection. Quinine urethane should not exceed 4 cc. at a sitting. If pressure seems to retard the progress of the syringe plunger too much force should not be exerted as the vein might burst or get a spill back through the needle puncture.

The injection should be about every 5 to 6 days as the amount of thrombosis can be determined by that time. The number of injections of salt solution usually range from 2 to 3 at one sitting As high as 60 cc. of 20 per cent sodium chloride

has been injected at one sitting by McPheters and Rice with no untoward effects except thirst, warmth and slight faintness. Usually one injection for small veins and up to four or five for larger veins is all that is necessary .

After injection a small compression pad of gauze is placed over the puncture wound and held tightly by a strip of adhesive or a spiral elastic bandage that is worn for 48 hours and then removed.

The greatest pitfall of a poor technique is a spill with a resulting slough, which takes from 1 to 3 months to heal, but, needless to say, the vein at that particular point is destroyed.

The test for efficiency of the deep veins have been left to the last of this section on technique, because it should receive considerable recognition before a case should be treated.

The most simple of all the tests consists of bandaging the limb with a spiral bandage and allowing the patient to walk vigorously for 10 minutes. If there is no discomfort or cramps with the superficial veins closed by the bandage it is evident that the deep veins are sufficient to carry the blood upward and into the circulation.

Trendelenberg's test is very reliable. It is done as follows: The limb is elevated, emptying the varices. The proximal end of the great saphenous vein below Poupart's ligament is then compressed firmly. The limb is lowered and the patient allowed to stand. If the superficial veins fill slowly and fill further with a gush when the pressure is released, the test is positive for insufficiency of the valves of the saphenous vein. If the veins immediately fill upon standing and if upon relieving the pressure a sudden further sudden filling of the saphaneous vein is evident, the test is doubly positive or Trendelenberg double. This type of vein should be injected with caution as recurrences are common.

A negative test results when the veins fill very slowly during compression and do not suddenly fill upon relieving pressure. This demonstrates the efficiency of the valves in the saphenous system, as well as the anastomotic valves. Other tests have been advocated but these are the most practical. If in Trendelenberg's test the saphenous veins fill quickly, it is logical to conclude that the deep valves are not functioning.

PATHOLOGY

Pulmonary embolus was until late years the greatly discussed and believed danger in injecting varicose veins. The direction of flow was thought to be cephalad, but McPheters and Rice of Milwaukee, as well as Schmier of Brooklyn have proven that is not the case and that it is downward in the superficial system, especially when varicosities are present.

Greensfelder and Hiller of Chicago proved that intravenous injection of sodium chloride caused a chemical thrombosis with a destruction of the intima and an endo and a peri phlebitis resulting. Fourteen days after injection the thrombus was well organized and canalization was taking place. No intima could be seen.

Glucose solution did not prove to be so irritating and the results were not so promising.

Rubeman and Douthwaite had similar experiences. This illustrates that more irritating solutions than glucose alone should be used. The sodium chloride forms a more firmly attached thrombus with more changes in the elastic tissues of the vein. This thrombus adheres tightly to the wall of the vein in considerable areas, thus preventing embolus formation. Organization soon takes place with productive inflammation and new blood vessels along with connective tissue generation. This process changes the veins to fibrous cords. These cords are somewhat tender from two to three weeks and gradually become smaller and scarcely palpable in from one to three months.

A perivenitis occasionally results, embedding the vein in a fibrous sheath but becomes practically all absorbed in due course of time.

The greatest danger is a spilling of the injected solution, especially sodium chloride and sodium salicylate, thus producing a slough. These are slow healing after a stubborn separation of the dead tissue from the healthy tissue. The healing process usually takes 8 to 12 weeks. This danger can be very greatly avoided by using combinations of glucose and sodium chloride.

CONTRAINDICATIONS

The contraindications were thought to be more numerous at first than now.

The question to be decided especially, is

the deep venous circulation sufficient to carry the blood when the superficial veins are occluded. This question can be reasonably accurately determined by the bandage test and the Trendelenberg test.

Phlegmasia alba dolens or milk leg, known to all medical men is a certain contraindication. This though, many times, need not prevent treatment, if the tests are positive for adequate return flow in the deep veins. Acute phlebitis is a contraindication since 7 cases in 54,000 have been reported to produce emboli.

Arteriosclerosis, senility and myocardial disease come in for their share of consideration. Pregnancy is usually considered a contraindication but where the veins are very extensive and the correct solution selected, it does not prohibit injections. Quinine solutions should, for obvious reasons, not be used.

Others may be listed as follows: typhoid thrombosis, edema of ankles, if marked, extreme age, as 65 or above and various acute illnesses. Hypertension, if careful consideration is given, should not be a grave contraindication. Diabetics and alcoholics can, with careful management, be treated.

VARICOSE ULCERS

Advanced cases of varicose veins, as we all know, produce a stagnation of venous blood in the tissues which in turn produces an ulcer. These are most common in the lower internal tibial region and below and behind the internal malleoli.

With great care the veins can usually be found near the ulcer and very carefully injected. If the tissues are very hard the veins will not be palpated as usually felt but will be grooves in the tissue. A site for injection must not be selected nearer than ½ to ¾ inch from the rim of the ulcer because the veins are so very thin that a rupture or spilling may cause a slough, followed by another ulcer which will complicate matters. This has a depressing effect upon the patient as he is looking forward to a reduction of ulcer area instead of getting more. A finding of these veins when they are large and covered with indurated tissue requires some experience. When these veins are injected correctly it is unusual how soon with no other treatment other than plain vaseline they will begin to fill in and heal .

Ulcers present one of the greatest problems we have to face in the treatment of varicose veins, especially in the aged and neglected cases. They have usually tried all methods from quackery to the hokus pokus salves. By this time the patient will usually be satisfied to cooperate in practically any way to get the ulcers healed. Supportive treatment to the veins of the legs is sometimes necessary in conjunction with the injection treatment, especially in the advanced ulcer case. These supportive measures are commonly known as Unna's boot and the various elastic supports on the market. Sometimes rest in bed is imperative, in the most advanced cases.

ECEZMA

Eczema is a complication equally as important and usually as difficult to combat as ulcers. It is more often of the moist type and a very painful and annoying condition. It usually involves the lower third of the tibio fibular region and usually corresponding to the ulcer area.

The treatment of this condition should be in the realm of the dermatologist who has quite good success in relieving the patient. The fact that an ecezma is present does not prevent injection treatment being carried out and will be an aid in the clearing up of the ecezma. It is sometimes difficult to convince the patient that the injection treatment should be followed at the same time the eczema is being treated.

CONCLUSIONS

1. It is a safe proceedure if proper consideration and technique is followed.

2. It is more convenient and less expensive to the patient than surgical intervention.

3. It offers a solution to the problem of the bad risk patient who has varicose veins.

4. Cases may be ambulatory during the treatment.

5. It is a beneficial factor in healing obstinate ulcer cases as well as eczematous cases that have been of long standing.

STRICTURE OF THE URETHRA*

O. R. GREGG, M.D.
ENID

With your permission, I am about to begin this paper in reverse, *ie.*, I am going to give you the summary first.

I want to call to your attention that:

1. Congenital strictures do occur and give distress.

2. That the pathology of inflammatory stricture is hypertrophic, while that caused by trauma is atrophic; and treatment that is beneficial to one, is harmful to the other.

3. Luetic obstructions are frequently present, easily diagnosed, and easily treated.

4. That T. B. strictures though rare, are always secondary lesions; should be palliated, and under no circumstances operated upon.

5. That it is the opinion of the author, that senile strictures do exist and are caused by degenerative changes, incident to old age.

A stricture is a narrowing of an elastic tube.

CLASSIFICATION

Spasmodic		
Organic	Congenital	Inflammatory
		Traumatic
		Inflam-Traum
		Luetic
		T. B.
	Acquired	Senile

Let me briefly call your attention to *spasmodic strictures*, which are not strictures, but a spasmodic contraction of the compressor urethra muscle. This is very much a nervous condition, as there is no real pathology in the urethra. It occurs in both men and women and in children.

Surgical operations, outbursts of temper, confinement, shock, painful urethritis, frequently produce this symptom.

Diagnosis. Simply an inability to pass urine. Anaesthesia always obliterates the obstruction.

Treatment. Remove the irritating cause if possible. Heat, and sedative will relieve, and extreme stretching with large sound or Kollman dilator many times produces a cure.

Congenital. We are born with these. They occur in both male and female, children and adults. They may be bands of adhesions that reach across the lumen of the urethra, or they may be vavles with various shaped pockets, and frequently the condition is a simple abnormal narrowing of the canal. The meatus and the fossa navicularis is the most frequent site of these congenital strictures, although they may be found anywhere along the floor of the canal. Nervous disorders, epilepsy, irritability of temper and underweight are frequently caused by this condition. Patients seldom notice an obstruction to the urine, even when the meatus has only a pin point opening. Let me briefly cite a typical case.

> Minister, age 45, two children; healthy as a child. "Flu" 1918, light form, the only disease. Tonsils removed, teeth good. Complains of having to arise two to four times at night to urinate. Very nervous, irritable. Notices discomfort in bladder particularly when riding. Inability to concentrate mentally as he should. Prostate normal in size, milky fluid expressed that was negative. Urinalysis 1.024; sp. gr. slight acid, albumen negative, sugar negative, diacetic negative, indican negative. Pin point meatus, able to pass only a small probe. Did a meatotomy also, found a very narrowed condition just posterior of fossa navicularis. This I also cut and passed a 22 sound and later raised to 26. Patient tells me he does not have to arise at night. He gained 15 pounds in weight. He has no bladder distress on riding and his mental capacity and disposition show vast improvement.

This is a typical case that I have treated since the first of the year. I could give you many more.

Of the *acquired* group by far the greatest number is to be found in the inflammatory classification. Keyes states that gonorrhea is the cause of all inflammatory strictures. The pathology is interesting. As you know the urethra is a hollow elastic tube. Due to repeated gonorrheal inflammations, there is a proliferation of round cells in the submucosa. These cells are slowly replaced by fibrous connec-

*Read before the Surgical Section Oklahoma State Medical Association Annual Meeting, Oklahoma City, May 11, 12, 13, 1931.

tive tissue, that hardens as it becomes older. It is this bulging of surplus fibrous tissue that narrows the lumen and makes up the stricture mass you are able to palpate. As this fibrous proliferation ages, it also shrinks. Rusche states there is always an inflammatory exudate that increases bulk and adds density to this fibrous mass. Again let me repeat that there is great thickening and hypertrophy of the urethral walls, in these inflammatory strictures.

Now *traumatic stricture* is a "horse of an entirely different color." Here we have a break in the continuity of the tissue, by force (generally a hard pointed instrument in the hands of a careless doctor) or it may be chemicals have lacerated the tissue. Like any other wound the tear is filled with blood clot and serum; this becomes organized and a scar (fibrous tissues) result, that connects the two normal tissue. Like all scar tissue, it is the shrinking and distortion, that produces stricture.

In *inflammatory strictures*, we have a hypertrophied mass; a proliferation of tissue. The urethra is thicker here than at any other place, while in traumatic condition, we have a thin scar, that has shrunk and pulled and distorted the surface, making stricture. The stricture here is the thinnest part of the wall. Just the opposite of the inflammatory condition. No mass here. If there is a mass, it is inflammatory and not traumatic. Both are fibrous tissue, I grant, but one is a hard thickened massive wall, while the other is a hard extremely thin wall.

I want to say at this time that you will never appreciate the difference between traumatic and inflammatory strictures, until you have dissected two or three of each kind. Then a blind man can tell the difference, because all you have to do is to feel.

Treatment: In the inflammatory type of thickened wall, this can be gradually stretched. It is fibrous tissue, but it is so thick that you cannot tear it *if you are half-way careful*. What happens when you attempt to stretch the traumatic stricture? It is so thin it won't stand the pressure and a break results.

Guyon, many years ago, taught that the sound not only stretched the proliferation of stricture tissue, but the massage in passing the instrument, served to cause an atrophy of the fibrous mass.

If the stricture is of filiform calibre two methods are at your disposal. First, (and in my opinion it is the better way,) with greatest of care and patience, insert the filiform and keep in place with adhesive, from twelve to thirty-six hours. In inflammatory strictures, enough dilatation will be produced so that it is possible to pass an 8 or 20F, when metal sounds may be safely used.

The second method after the filiform is passed, is to screw on a Phillip's bougie to the filiform, pushing the filiform into the bladder as a guide, then partially withdraw and use the next number screw-on bougie. If there is no difficulty in passing the filiform, the whip flexible bougie is the instrument of choice, as there is no rigid screw on connection, and no trauma whatever, when this instrument is used. However, with the modern Phillip's, the screw is very small, making very little angulation and little difficulty in passing.

In regard to the LeFort sound and guide it is similar to the Phillip's, except the follow up is a metal sound rather than a flexible bougie. Because of the extreme angulation made by the "screw-on" I consider this a cruel instrument. The probabilities are that damage will result, and a simple inflammatory stricture be converted into an infla-traumatic type. I can see no possible reason for using this instrument, when we have the whip and the Phillip's.

In passing filiform strictures an abundance of patience is required. If fluid can be injected from outside into the bladder, or if the patient can express a few drops of urine, a filiform can be passed, and this comprises practically all strictures.

Injecting a small amount of novocain into the urethra is a wonderful aid in passing the filiform. It has the disadvantage of deadening the sense of feeling and the patient is not able to tell you when you are in the pocket rather than the canal; however with a proper technic your sense of touch will tell you much more than the patient, and the relaxation off sets this disadvantage.

To treat strictures, it is necessary to have a good assortment of instruments.

Now the *traumatic type*. This is thin scar tissue and every time an attempt is made to dilate, a tear is made, and insult

is added to injury. Certainly, relief will be given by using the sounds. You have torn the canal in enough places to enlarge the calibre, but in a few days they are again contracted and the patient worse than before. Why make a lot of scars where you don't want them, when you can so easily make a large clean-cut scar where you do want it. It is on the same principle that the obstetrician does episiotomy. The urethrotomy must be kept open and dilated with sounds, so that the scar will not contract, and you have a narrow scar when a wide scar is desired .

Text books are full of advice that tell us to do internal urethrotomy on anterior strictures, and external urethrotomy on posterior. I think the principal reason for this advice is; that they are able to devote several pages describing elaborate operations, and confusing mental pictures that might otherwise be simple and clear. Let me call your attention that there are no traumatic strictures in the prostatic urethra. If prostatic strictures are found, they are either luetic or T. B. It is amazing how many good men have learned this fact by a sad experience.

Formerly, I did external urethrotomy on all posterior strictures, Now I very seldom do an external urethrotomy. The convalescence is so much shorter, as is the period of hospitalization, I find it worth while to take the chance, the text books to the contrary, notwithstanding. Hemorrhage is the disadvantage, but with the use of modern coagulants, and by placing a very large catheter in place, I see no reason why this cannot be controlled.

The *instruments*, whatever you like best. I prefer the Otis urethrotome, however, I occasionally use the Maisonneuve instrument with a filiform stricture.

The *infla-traumatic* type is a mixture. Here we have a hypertrophied fibrous mass punched full of holes and lacerated by some amateur, who is anxious to do something. An act of Congress forbiding the manufacture of sounds below 20F would prevent all of these. On dissecting out the lesion, you find the ordinary mass of thick fibrous tissue with areas of thin scar tissue, many times as thin as paper, where a false opening has been made. Unless you know that scar tissue is the larger part of the mass, try gentle dilatation. If it doesn't work, do a thorough urethrotomy.

This mixture of pathology is avoidable, unexcusable, and criminal.

Luetic Strictures. While not common are not infrequent. I have seen them more frequently in women than in men. There is hypertrophy of the urethral walls, particularly of the mucosa; there is great distortion and contraction. Because of this, one naturally thinks he has a terrible mass of scar tissue, but give a couple injections of neo and see it melt away.

Tubercular Strictures are rare, but occasionally one finds them. Not only is the stricture mass hard and unyielding, but the entire urethra is so hard it feels like a slate pencil. The pain is entirely out of proportion. Even attempting to pass the smallest instrument causes pain that is unendurable. Painful frequent urination, particularly at night, with a very acid urine is a red thread symptom. The lesion of the urethra is always secondary, and it is probable that the kidney, bladder, vesicle, or testicle is involved.

As to treatment; do as little as you can. Palliate; do not try to operate this condition, or you'll be sorry. The wound never heals, and you've made a bad matter worse. I do not hesitate to do a cystotomy. This affords the patient much greater relief than instrumentation of the urethra.

Senile Strictures. There seems to be a stricture due simply to senile changes. I have observed five cases that I thought were purely senile, four in women and one in a male. All were past seventy. I could find no history of previous discomfort, or frequent urination.

Gradual dilatation relieved the condition.

I have never had the pleasure of autopsying one of these cases, so regarding the pathology I can only give you the opinion of others. Herman who was first to report these strictures of old age, thought that the pathology lay in hypertrophy of the urethral wall. Wynne agreed, while Kleinwachter and Fischer believed that the elastic fibers and muscles atrophied, and were replaced by fibrous tissue.

I do not know, and until there is more observation, I doubt if anyone else knows. I do know that you have the hang of the stricture, and sounds relieve.

The *results of stricture* are very much the same regardless of cause; frequent and painful urination, decrease in size and force of the stream, gleet, various

nervous disorders, cystitis, pyelitis, hydronephrosis, extravasation of urine into the scrotum and adjacent parts, and resulting gangrene.

Prognosis. With the exception of luetic lesions, I think we are still safe in saying, "Once a stricture always a stricture," and they must be relieved from year to year.

Permit me to conclude this paper by asking you a question. Why do hypertrophy of the prostate and stricture of the urethra never co-exist?

DISCUSSION: *Dr. Bransford Lewis,* St. Louis, Mo.

I did not expect to talk on this subject, but nevertheless, I have learned enough to talk about something from this splendid paper which we have just heard. The doctor has given us an excellent review of the subject of urethral strictures. There have been masses and masses of medical literature on strictures and no one ever gets through talking about the subject. It was Otis who awakened the profession some 30 years ago. He said that every male urethra had several calibers, and one should know the different calibers of the urethra, at the different anatomical locations. He made a standard for us to go by. One should examine and should be able to recognize these normal physiological anatomical narrowings at the meatus. Otis however went to the extreme, cutting widely on a urethra, which certainly did not conform to the standard. He just went too far and cut too widely. The profession gradually learned that it was not good to follow his teachings and took a more conservative stand. They adopted the methods of using the steel sounds and others which enlarged the caliber of the pathological constrictions. The normal American man will not take care of himself. He gets better and leaves you, and then when trouble begins, he returns and we have to go through the same gradual enlargement of the urethra again.

Strictures in Women: This is a feature of this subject which is rather neglected. Last week, I had a stricture of the urethra in a woman who had been a subject of severe pain in the left kidney and it had been present since last October, except for about a week last Christmas. She had been X-rayed for stone in the kidney and nothing was found. Since 1913, I have been observing cases of renal colic, coming not from stone, not from stricture of the ureter, and not from anything that you could recognize but in about two dozen cases there was obstruction of the urinary channel in the neck of the bladder. That obstruction produces backward pressure. We dilated the urethra in the above case and the woman was relieved of the pain in the left kidney. Contraction in the neck of the bladder in the male, in the urethra in the female, may produce a reflex of pain. The effects of obstruction, whether in a man or woman can be the same.

Dr. Clinton K. Smith, Kansas City, Mo.

I have enjoyed the splendid paper of Dr. Gregg, and he has certainly taken a common, every day condition and made a splendid, important essay out of it. I am sure that the average patient does not realize the importance of a stricture of the urethra, and sometimes, I wonder whether the doctor realizes the importance. Just because the patient is able to urinate, he usually thinks that he is getting along splendidly and we in turn as doctors let the patient go. With a urethral obstruction, it is evident that toxic absorption has been going on, because of back pressure. We should examine these patients and find out whether they have inflamed and enlarged prostates. I believe that I have nothing to add to this splendid paper.

Dr. W. J. Wallace, Oklahoma City.

Stricture is much more serious than we realize, than the people realize or the profession realizes. It must be treated heroically, more so than in the past. Dr. Gregg stated in his splendid paper—"once a stricture, always a stricture." In my opinion, a real stricture will remain. How long will it take to cure the stricture? The patient will always have to have treatment more or less the rest of his life. We can dilate oftentimes to 30 and it will retract. Patients should be told that they must go at definite times and have this condition attended to. We have strictures of large sizes and of moderately large sizes which give trouble and which are overlooked. Often times we will pass a number 24 sound and think that the man is all right. I have experienced trouble in passing a number 28 French, and it has met a hard, sclerotic obstruction. We very often find a diverticulum beyond the veramontanum. I try to teach my students to carry the sound on up, until a No. 30 will

pass into and throughout the entire urethra. A normal man should admit a size 30 French without much pain and without making him bleed.

As to back pressure—the pains assimilate urethral colic. We must not think of stricture as a local condition, but as a general systemic condition. Stricture is a serious condition, and should be treated as such. Do not fail to use a sound. I believe in the "sound."

Dr. Otis:

I wish to stress the point that we must not forget the prostate. I was interested in the congenital stricture, and I think we have more congenital strictures, than we know about. Just last week, I had a three year old boy in the office, who had some difficulty all his life with a frequent, difficult urination. He had been seen by various doctors, and when I attempted to catheterize him, I found that he had a stricture of the urethra. He was carrying 10 ounces of residual urine in the bladder. After releasing the urine and putting in a retention catheter, he went through the same physiological upset as a prostatic case would. The little fellow was thin, nervous, anemic and run down.

In regards to the female urethral stricture. I don't think that we emphasize this condition sufficiently. I think that women have it more commonly than we suspect. Female children have urethritis. The urethra is subjected to the menstrual discharges and later on the trauma of childbirth. I have noticed that after I have done a cystoscopy on a woman, that in a day or so, she will come to the office and say "doctor, I feel relieved from my distress." I believe that what we have done, is that we have relieved a stricture of the urethra in the female. We cure 25 to 50% of cases of stricture of the urethra in women without knowing it. I want to compliment Dr. Gregg on his interesting paper.

TEACHING OF MEDICINE

Ralph H. Major, Kansas City, Kan. (Journal A. M. A., April 27, 1929), in a paper read before the Annual Congress on Medical Education, Medical Licensure and Hospitals, Feb. 18, 1929, says that a physician should be not only a doctor but an educated man, and that the standing of the profession will suffer if we turn out a lot of doctors who have galloped through the college and medical course. The degree of M.D. should indicate a certain educational and intellectual status. It means that the possessor of this degree has slowly and often painfully trudged up the difficult and winding path of knowledge until he has reached a certain summit—not that he has taken the funicular and arrived there in half an hour. Major says that he tries to teach the student the technic of taking a history, making a physical examination, carrying out the simpler laboratory tests and then, after these details have been mastered, of proceeding to the diagnosis and treatment. The physician should first know the symptoms manifested by a patient even if the diagnosis is not apparent, for once he is sure of his observations he can, by reference to his books, usually make a correct diagnosis even when the disease is one of which he has not even heard. Medicine is not learned by diligent cramming over the midnight oil but by what one might te.m the "episodic method"— teaching of medicine as a series of episodes, at first perhaps unrelated, but later assuming the appearance of a connected story, or a well rounded experience as the episodes multiply. There is no doubt that medical students, like many physicians, attach undue importance to the laboratory. While we stress clinical instruction in medicine, if necessary, to the partial curtailment of didactic courses, we believe the latter have a limited but definite place in the medical curriculum. The question of the proper textbooks in medicine is a constantly recurring one, and to both student and teacher a very complex and often perplexing problem. Medical books are to be used as reference works and not as repositories of medical dogma which must be memorized and defended like the catechism. An effort is made to show that the clinical picture of a certain patient is the thing to fasten first in one's mind, and then one's knowledge may be extended by reading the composite picture of this disease presented in the textbook and noting wherein the condition of this particular patient resembles the usual picture and wherein it differs. Students should be encouraged to read good medical biographies. This historical method has a great teaching value. One lesson to impress on the student is that the patient consults him because of pain or discomfort, and that if a cardiac patient is seen in the late afternoon it is more important at that time to give the patient a comfortable night's sleep than to learn whether he has a mitral stenosis or an aortic insufficiency.

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MALTA FEVER

R. C. SULLIVAN, M.D.
ARDMORE

Malta fever, also called Mediterranean fever, undulant fever, Neopolitan fever, Rock fever, Gibraltar fever and Goat fever is an endemic infectious disease, characterized by an irregular intermittent fever, profuse sweats, arthritis, enlarged spleen and a tendency to relapse. It is transmitted almost exclusively through the milk of goats, in which the organism is excreted. It has been obtained from human, bovine, caprine, porcine and equine sources. It is caused by a coccobacillus, *Brucella melitensis*, which may be isolated from the spleen, blood or urine. Brucella melitensis can be differentiated from Brucella abortus, the cause of contagious abortion in cattle, only by absorption of agglutinin tests, so that it seems logical to consider the organisms as belonging to the same species.

Cases of Malta fever have been reported in places where goat's milk was not a factor and the organisms were found to be of the abortus variety, so that it seems that cases may arise from drinking milk from cows infected with abortus variety, although such a source has not been definitely proven. Occasional cases have been reported which were thought to depend on infection through domestic animals, as the handling of puppies from a dog which had aborted.

The typical case runs a course of three or four months or longer, and the mortality rarely exceeds two per cent.

Epidemiology. In man the most important mode of excretion of the organism is by the way of the urine. Kennedy found Brucella melitensis in about 10 per cent of the urines of patients examined. It is possible that excretion takes place through the feces, but this is rather conjectural. Lactation is rare in women with malta fever, but in a few cases in which milk of such cases, the organism has, as a rule, been recovered. In addition the organism is frequently present in the blood, blood cultures having been positive in 65 per cent of Eyre's cases. All evidence of transmission by blood-sucking insects or arachnoids is practically negative.

Notwithstanding the frequent elimination of the organisms through the urine, it would seem necessary to dismiss such a means of transmission as other than extremely rare, because infections of the attendants of the hundreds of cases treated in military hospitals of England were practically never observed. There does not seem to be a human carrier problem in this disease. All evidence since the publication of the reports of the Malta Fever Commission (1905-1907) goes to sustain the view that the conclusions of this commission are correct, that the drinking of raw goat's milk is the paramount source of infection. In the investigation of this commission it was found that Maltese goats could be infected by food contaminated with Brucella melitensis. It was also found that many goats showed a natural infection.

The months of June, July and August give the greatest incidence of the disease. This is explained, not only by the greater use of milk during the summer months, but also by the fact that following the birth of the kid in the spring, the contamination of the milk is more marked.

Monkeys are very susceptible to this disease. By feeding twenty-eight animals as an experiment with infected milk, twenty-six of them developed Malta fever. The disease in the infected area of Texas is also known as "dust fever," this designation coming from the idea of infection taking place in the dust filled goat pens.

Patholology. Our knowledge of the pathology is not very exact, due to the lack of autopsy material, and also the great variation in the course of the disease. Careful autopsy studies would indicate that there is no particular tissue or organ peculiarly selected by the causative organism or its toxins, and this fact probably accounts for the variation in findings. The most important fact in the pathology is that the disease is a bacteremia, which fact may be practically demonstrated by blood cultures made during the febrile attacks. There also seems to be a degenerative action upon the red blood cells and a lowering of the phagocytic activity of the leucocytes.

Probably the most constant finding at autopsy is the more or less enlarged spleen. In acute cases the spleen is large and soft and dark, much congested and weighing up to 200 grams. In chronic cases it is quite large and Bassitt Smith has reported a case weighing 1200 grams. The liver and kidney are congested. There is no ulceration of Pyer's patches. At times we may find enlargement of the mesentric glands and from them get pure cultures of the causative organism as well as from the spleen.

History. Hippocrates described cases of protracted fever with relapse tendencies. It is probable that such cases were Malta fever. Following the Crimean war in 1863, there was quite an incidence of fevers in Malta, and the following year the first detailed description of the disease made by Marston under the designation "Mediterranean Remittant Fever," In 1886 Bruce isolated a coccoid organism from the spleen which he called micrococcus melitensis and was able with cultures of this organism to transmit the disease to monkeys.

Complications. As complications, we have pneumonia, orchitis and more serious and more common, hyperpyrexia and heart failure. Epistaxis is not uncommon; we may rarely encounter cases with extensive hemorrhage into the skin and mucus membranes and hematuria. Anemia is the most common sequella. Also the long continued illness that it produces tends to bring about a neurasthenic state.

Treatment. This is symptomatic and supportive and somewhat on the lines of that of typhoid. People living in the infected regions should not use the milk of goats; or else, if no other is available, it should be boiled. Infected goats should be killed. The best results in treatment have been in the use of vaccines, this being confined, however, to cases of a chronic type, for in acute conditions they may do harm. The autogenous vaccines have had greater success than the regular stock vaccines.

Prognosis. About two per cent is the usual mortality rate. It is usually considered that a lasting immunity is conferred by an attack, but cases are on record of a second infection.

Diagnosis. Of the diseases which resemble Malta fever, typhoid and paratyphoid fevers are mentioned first. The main differential point is that Malta fever does not produce the toxemia that the typhoid group does. The sweating and daily remissions of fever suggest malaria, especially the malignant tertian type. Some cases resemble pulmonary tuberculosis, some resemble amebic abscess of the liver. Blood examinations, blood cultures, the agglutination tests, sputum examinations, etc., of course, make the final differential diagnosis.

The symptomatology is being ommitted and a case report substituted since it is quite typically a text book picture:

Patient. J. G. J., Ardmore, Okla. Age 25 years, male, married. Occupation, boiler worker.

Family History. Father living and well, age 62. Mother living and well, age 61. Six brothers all living and well. Two sisters living and well.

Chief Complaint. Weakness, loss of weight, fever, sweats, pains in the lower back and swollen and painful testicles.

Present illness. About October 1, 1930, early in the morning he had a feeling as if he needed a cleaning out, so he went down to the drug store and bought a course of purgative medicine and took all of it. The purgative was quite thorough, but it did not relieve him of his complaint. Growing worse all the time, in a few days he called in a doctor who examined him quite carefully and made a provisional diagnosis of Malta fever. This diagnosis was verified by the Arizona State Public Health Labortaory, the U. S. Veterans' Hospital at Tuscon and by a laboratory in Phoenix.

Fever was present from the very beginning. Early in the morning each day he would feel pretty good, but by 11 o'clock he would become fagged out and have to go back to bed. The morning temperature would usually be down about normal but in the afternoon it would be 101 to 103 Farh.

Three weeks from the onset he began having aching rheumatic like pains across the shoulders and down the back. These pains and aches remained more or less constant throughout the course of the illness.

During the eighth week of the illness both testicles began to swell and ache. The right side became affected first and three or four days later the left side. The condition in the right soon subsided but the left got worse and necessitated a hos-

pital stay of two weeks, during which time the swelling left the left testicle but the pain had not entirely gone.

About Christmas time the fever came to normal and remained so for four days. This is the only period of time that the temperature remained normal for any length of time during the entire illness. The highest the fever had reached was 104 degrees. Almost every night since the onset he had had a profuse night sweat. This perspiration had a very fetid odor, different to any sweat odor known.

The appetite was good and had been throughout, though there was a gradual loss in weight reaching 35 pounds. The bowels had been more or less undisturbed; there was no cough or respiratory symptoms.

Past History. Has had mumps and small pox, but not any of the other contagious diseases. Had typhoid fever at age of 14 and was sick eight weeks. Had no other serious illness; had never met with an accident; had never been operated on. Was born and reared in Oklahoma, moved to California seven years ago and engaged in oil field work. Came to Tuscon, Arizona, in May 1930, and worked for a short time as bookkeeper for a transfer company, then took up a homestead eleven and one-half miles from Tuscon. While in Tuscon he used raw goat's' milk. His wife and two brothers were living with him and drank of the same raw goats' milk. The wife fell sick. The symptoms were similar to those the husband had later, but the attack was milder and she was well in five weeks. There were no other cases of Malta fever around Tuscon that summer. He left the hospital in Tuscon and came here to his father's home in Ardmore, December 23, 1930.

Physical Examination. There is a marked pallor of the skin and mucus membrane. Temperature 101.8 F., pulse 120, respiration 20. The slightest exertion causes an increase in the pulse and respiration. There is no edema present; liver is palpable about three fingers below the costal arch; spleen is palpable; left testicle is swollen, indurated and very tender. None of the superficial glands are enlarged. Weight is 138 pounds.

BLOOD COUNT

Hemoglobin	75%
R. B. C.	5,150,000
W. B. C.	12,800
Polys	59%
Lymphs	41%

Urine. Heavy albumen; loaded with pus.

Progress and treatment. His previous treatment was continued; that is, salicylates, rest, diet, elimination, etc. Several attempts were made to get cultures from the urine and from the blood, but a positive growth could not be obtained. The agglutination test still remained positive. Brucella melitensis fever curve ran more or less constant, that is, normal or slightly subnormal each morning and 100 to 102 degrees Fahr. in the afternoon. The general condition of the patient seemed somewhat improved however. There was a slight gain in weight and in strength so that he could stay out of bed all of the day.

Finally, on February 2, 1931, he was given 4 minims of triple typhoid vaccine intravenously and ordered to bed. Two hours later he had a hard chill, the temperature rose to 105 degrees Fahr. and there were symptoms of aching, etc. This reaction lasted for three days. Since then there has been no return of fever; there has been a rapid gain in strength and an increase of 21 pounds in weight. The color is natural; the spleen and liver are no longer enlarged and patient is now able to do a full day's work.

SYPHILIS AMONG STATE PRISONERS

L. L. Stanley, San Quentin, Calif. (Journal A. M. A., April 13, 1929), states that every prisoner who enters the California State Prison at San Quentin is given a thorough physical examination. This includes the Wassermann test for syphilis. Ten thousand men have undergone this examination from Jan. 1, 1918, to Jan. 1, 1926, Of this number, 8,004, or 80 per cent, were white; 530, or 5.3 per cent, were negroes; 1,265, or 12.65 per cent, were Mexicans, and 201, or 2 per cent, were yellow. The Wassermann reaction was as follows: Of 8,004 white persons, 578, or 7.2 per cent, reacted positively. Of 530 negroes, ninety-six, or 18.1 per cent, reacted positively. Of 1,265 Mexicans, 198, or 15.6 per cent reacted positively. Of the total number of 10,000, 921, or 9.21 per cent, reacted positively. Of the 10,000 prisoners, 1,507, or 15 per cent, gave a history of venereal sore which may have been chancre, chancroid, herpes or venereal wart. Of the 10,000 prisoners, 4,820, or 48.2 per cent gave a history of gonorrhea which cannot well be mistaken. Of this number of prisoners, 36.58 per cent were married and 63.42 per cent were single.

CESAREAN SECTION*

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The purpose of this paper is to bring out the indications and contraindications for the performance of Cesarean section, in the hopes of being instrumental in avoiding, or at least diminishing the abuse of one of the most valuable life saving obstetric procedures for both mother and child. C. Jeff Miller in a recent address stated that, "It is one of the paradoxes and one of the tragedies of medicine that certain measures designed primarily as life saving and health giving should carry in their abuse death and invalidism. Originated for the salvation, first of the child and then of the mother, all too frequently it has become a death dealing agent for both. Cesarean section belongs to this group."

By cesarean section is meant the operation for the removal of the child from the uterus, through an incision in the abdominal and uterine walls. The term is restricted to the abdominal delivery of a child normally situated in the uterus and is not applied to operations for removal of the child from the belly cavity after rupture of the uterus or for the removal of the child from the abdominal cavity in cases of ectopic pregnancy. A short history of the operation will at this time not be amiss.

It was generally believed that Julius Caesar was brought into the world by this means, and that he obtained his name from this operation, *a cesa matris uteri*, but it is now almost certain that this is not correct, since his mother Julia lived many years after his birth, and at that time the operation was not performed on the living woman. Then too, Julius Caesar was not the first of his name, since Roman history tells us that a priest named Caesar lived at a considerably earlier period.

Another theory for the origin of the name is that the term is derived from the Latin verb *cedere* (to cut) and that the term implies delivery by means of cutting. While this explanation is possible, it is not very plausible, in view of the fact that in 715 B. C. Numa Pompilius, the King of Rome, codified the Roman Law, and in this *lex regia* a command went out that all women who died late in pregnancy have an abdominal section performed, in the first place to save the life of the child, and in the second place to assure a separate burial for both mother and child in the event of the latter's death. The *lex regia* became the *lex cesaria* under the rule of the emperors, and the operation became known as the cesarean operation. This seems to establish the antiquity of the operation on the dead.

The history of this operation on the living is, however, of more recent date, but its beginning is obscure. The true history of cesarean section covers four periods; first from the earliest beginning in 1500, during which period the operation was occasionally performed on women who had died during late pregnancy. During this period there is no evidence that the operation was performed on living women. Second, from 1500 to 1876: During this time the operation was occasionally performed on the living, when all other methods of delivery had failed, but the results were almost always fatal. It is claimed that a Jacob Nufer, a castrator of pigs, residing in Switzerland, performed this operation on his wife, when a number of midwives and barbers were unable to deliver her, and gave up the case as hopeless. Since this woman had five (5) spontaneous labors later, it is now believed that this was not a true cesarean section, but probably an operation for the removal of the child lying in the abdominal cavity outside the uterus. It seems that the first generally accepted cesarean section was performed on April 21st, 1610, by a surgeon, Jeremias Trautman, in Wittenberg, Germany, on a woman with hernia uteri.

In spite of the great mortality attending the operation it gradually gained foothold and no doubt through the attitude of the Catholic church, which favored the procedure, that it came more and more into prominence. There is good reason for this operation not becoming a very favor-

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able method of delivery, when we learn that Kayser of Coppenhagen in 1844 reported a mortality of 62 per cent. Naegele showed a mortality of 64 per cent in Germany, and Harris in 1878 reported a maternal death rate of 52.2 per cent out of eighty (80) cases in the United States. In the third period from 1876 to 1907 we find a different situation, for this is the time when Porro of Pavia, advised the amputation of the body of the uterus, and fixation of the stump in the lower angle of the abdomial wound in order to overcome the well recognized dangers of hemorrhage, leakage of lochia into the abdominal cavity and subsequent infection. Prior to this, you will remember that the unsutured uterus was returned to the abdominal cavity after removal of the child. Naturally Porro's procedure was followed by most remarkable results, and the operation became very popular, but it was done at the sacrifice of a valuable organ, the uterus.

Then in 1882 Sanger revolutionized the operation by calling attention to the need of closing the uterus with sutures in order to avoid the danger from the open uterine wound. This naturally was a marvelous step forward and this operation then became known as the conservative, in contradistinction to the Porro, or radical cesarean section. Many modifications of both operations have been practiced, but time does not permit a review of this part of the history.

In 1907 a fourth period began when Frank of Cologne, realizing that the results of the conservative cesarean section were still unsatisfactory when done on women frankly infected or even in doubtful cases, advised and described a method of operation, which could be done extraperitoneally. While the early promises of this operation were not fulfilled, it was I think, responsible for numerous modifications and refinements, and led up to the operations of choice of our present time.

Aseptic surgery and improved surgical technique have greatly increased the success with which cesarean section can be performed, and have in turn led to the employment of this procedure many times as an operation to the exclusion of other methods of delivery, which might be better suited to the needs of the given case, and has therefore today become the most abused obstetric operation. It is performed by the neophyte, and even older men, on patients who present no real indication for it, and under conditions which make it exceedingly dangerous.

As a general rule the poorly equipped obstetrician has more cesarean sections to his credit than has the well trained accoucheur. In preantiseptic days cesarean section was considered so dangerous that it was believed to be indicated only in cases in which delivery of even a mutilated child was not possible. But since the development of aseptic surgery, there seems to be a general impression in the minds of the public, as well as in the minds of the profession, that this is a perfectly safe operation and will always be followed by good results under all conditions. It must always be borne in mind that an abdominal operation is a major procedure and carries with it, a certain risk of life. Many women are today, subjected to this operation because these risks are ignored and because the attending physician either lacks the obstetrical skill to deliver the given case by the natural passage, or hasn't the patience to allow the case to deliver by the pelvic route. While we have for a long time recognized strict and definite indications for the performance of cesarean sections, these very strict indications are not always adhered to, nor is it always desirable to do so.

The only absolute indication for the operation is the existence of some pelvic obstruction, which renders delivery by the vagina, even of a dead or mutilated child impossible or at least so dangerous that the abdominal operation adds no greater risk for the mother than a delivery through the natural passages, and therefore, the surgeon who undertakes the performance of this operation for any other reason should be sure that the benefits which are to be expected from this operation for either mother or child will outweigh the certain increased risk connected with an abdominal delivery. Today we do not strictly adhere to this absolute indication, and at the present, it may be said that the indications for cesarean section include all conditions which so complicate labor as to seriously threaten the life or health of the mother or child, and although the operation carries with it some risk, this danger is comparatively small when the operation is done under proper conditions in experienced hands.

The mortality rate from cesarean section when done by skilled obstetricians

and men of good judgment is from 2 per cent to 4 per cent, but I almost fear to state the mortality percentage for cesarean sections of this country as done by all who have the courage to do this operation, or when done by those who possess the technical skill, but lack the obstetrical judgment. Holmes several years ago stated that when a surgeon showed more than 5 per cent maternal mortality for this operation, he should revise the indications for which he operates, and should subject his operative technique to the very closest scrutiny, since such mortality proved that he was either selecting the wrong kind of cases or operating under improper conditions, or that his aseptic technique was imperfect.

That this operation can be done safely in properly selected cases and under proper conditions is evidenced by the fact that several operators can show a series of 100 consecutive operations without a death. This does not seem such a marvelous feat today, for even as early as 1901, I was present and assisted at the one hundredth consecutive cesarean section which Leopold of Dresden performed without a maternal mortality. Such results can, however, be obtained only if the proper indications are present and if the correct technique is followed out. We find today a maternal mortality of 2 to 25 per cent and higher, and a fetal and infant mortality of 2 to 30 per cent. This represents, of course, cases which are available for inspection and study. But what about those cases that are done thoroughout the land of which we have no knowledge. And when we study the statistics of various hospitals, we find the mortality rate still extremely high. The minimum mortality is at least 2 per cent even when done as an elective procedure, and when every circumstance is favorable. There are reasons for this high mortality. Reckoning from beginning of labor pains the danger grows with each hour of the duration of labor. At first slowly, but gradually increasing. Morrison and Williams found that the mortality increased 1 per cent for every two hours of labor. That bad results follow repeated vaginal examinations is generally recognized, and yet, we see this factor frequently ignored. I believe, if we still followed out the teachings of Leopold and others, who stated that vaginal examinations were a definite contraindication for the performance of the classical section, in spite of the fact that we have at times obtained good results in such cases when the low cervical operation was done, our mortality rate would be reduced. The prognosis is better when the membranes are intact.

According to Holland, the mortality when the membranes are intact is 2.2 per cent, while with ruptured membranes the death rate rose to 10.8 per cent. According to Routh 3.6 per cent with unruptured membranes and 10.8 per cent with ruptured membranes and prolonged labor.

Previous attempts at instrumental deliveries of course ,make the prognosis still less favorable and with all these dangers, we must not forget that the danger to the child increases in like ratio. The mortality is, of course, influenced favorably when done by competent and well trained obstetricians. For example, I found the report of 107 cesarean sections performed in Houston, Texas, from 1923 to 1926 as recorded by Neal Davis. The mortality in these cases was 14.4 per cent. Fifty-one per cent of the 107 cases were operated by a group of recognized surgeons and physicians in general practice, with a mortality of about 33 per cent. Another small group composed of physicians specializing in obstetrics and surgeons, closely associated with them performed fifty-six consecutive cesarean sections with a mortality of 1.8 per cent. We hear a great deal about the abuse of this operation all over the country and that the operation is being done in various hospitals with increasing frequency, even where the staffs in these hospitals consider their attitude conservative. An excellent example of this is shown in the figures of Greenhill, who reported 874 cervical cesarean sections done at the Chicago Lying-In Hospital. From July 1st, 1915 to July 1st, 1929, there were a total of 51,323 deliveries. Only part of these were delivered in the hospital, and a smaller part were confined in the homes of the patient. Of these cases 1059 were delivered by section, 2.06 per cent. One operation for every 48.5 patients. But let us study this table and see the progressive and astounding increase.

1915 to 1916 there were 2430 deliveries 0.6% Cesareans, 162 Del. per Cesarean.

1920 to 1921 there were 3362 (932 cases more) 1.3% Cesareans, 76 Del. per Cesarean.

1925 to 1926 there were 4350 (988 cases more) 2.7% Cesareans, 36 Del. per Cesarean.

1928 to 1929 there were 4630 (280 cases more), 3.0% Cesareans, 33 Del. per Cesarean.

Why this great increase over a period of fourteen (14) years? Have obstetric

complications increased in this same ratio as to justify this growth in the number of operations? While I can understand that since the introduction of the low cesarean section, many women may now have this operation performed, who formerly either lost their life or that of the baby, but I rather believe that is an indication that the profession is adopting a more flexible rule of indications for the performance of the operation.

Let us look farther. Dr. George Mosher of Kansas City in June, 1927, and Dr. C. Jeff Miller of New Orleans in June, 1929, reported the following figures as to the incidence of the operation.

	Sec		Del.
Burnside (Toronto)	1	Per	861
New York Lying-In Hospital	1	Per	586
John Hopkins Hospital (Baltimore)	1	Per	103
Rotunda Hospital (Dublin)	1	Per	97
Sloan Hospital (New York)	1	Per	36
Boston Lying-In Hospital	1	Per	12

When we study these figures closely we are struck with the difference in incidence in two hospitals of the same city. One with one section in 586 deliveries and the other with one section for every thirty-six (36) deliveries. Part of this difference can be accounted for by the fact that Sloan handles perhaps more private patients who demand that their suffering be relieved in the shortest possible time, but I cannot believe that this would account for the entire difference. Is it possible that the obstetric material is so markedly different in two hospitals of the same city to increase the incidence of operation to this degree?

Max Hirsch of Berlin at the twentieth meeting of the Deutsche Gesellschaft fuer Gynekologie in 1927, made a plea for an increase in the incidence of cesarean sections as the best means to diminish the high maternal mortality which exists today. He advocated the substitution of cesarean section for all vaginal operative procedures except perhaps low forceps. If such a practice were really carried out, it is hard to surmise what our maternal and fetal mortality might be. I am afraid we would reach the mortality figures that were obtained before Semmelweis' investigations and studies. But paint the picture as dark as we may, there are still definite indications when the operation of cesarean section is a life saving procedure and a boon to womanhood, and it becomes a menace only in its abuse.

The woman who is to be delivered by cesarean section should be given the benefit of expert advice and opinion. I do not believe that the general surgeon is in any better position to advise cesarean section than is the obstetrician to advise the removal of the thyroid gland, nor do I believe that the general surgeon is equipped to give the patient the benefit of the most advanced technical methods. It should be the duty of a hospital management to give to the patient such benefits and insist upon complete obstetrical consultations. We have instituted such a rule in our hospital. No major obstetric operation can be performed in this hospital without obstetrical consultation acceptable to the hospital. this does away with snap judgment and often unnecessary operations.

The three great and all important indications for cesarean section are the preservation of the mother's life and health and the preservation of the child's life. All other indications fade into insignificance.

The great majority of cesarean sections are done for pelvic contractions or, to state it more accurately, for a disproportion between the size of the pelvis and the child's head, which renders delivering impossible, or so hazardous that abdominal delivery is a safer method for one or both patients. Great errors are committed in the name of pelvic contractions, and many sections are done for these contractions, when if the case were left alone, it would probably deliver spontaneously under proper obstetric treatment. I once asked a general surgeon who was getting ready to do a cesarean section what the indications for the operation were in his case, and his answer was "contracted pelvis." When I asked what the measurements were, he answered, "they are all very small." This brings me to a matter which has recently occurred in a hospital where I am active. A few months ago an inspector from the American college of Surgeons came to look over our hospital and records. He found among other things that our obstetric histories, as filled out by non-staff members, frequently showed the notation "pelvic measurements normal." He told the hospital that this practice should be stopped, so in due time we posted the following notice: "The American College of Surgeons demands the proper recording of pelvic measurements; the mere statement 'normal pelvic measurements' cannot be accepted. Won't you please cooperate with the hospital, so that we may be kept in an "A"

rating?" The result was that many complaints were promptly registered. Practitioners stated that they had practiced obstetrics for many years, and had never made a pelvic measurement. Others, on the other hand, in order to cover their ignorance of the subject, and under the guise of being too busy, requested the junior or senior interne on the service to make the pelvic measurements.

Recently in looking over some of the records, I saw one with a conjugata externa of 9 cm., and yet this woman had a spontaneous delivery of an eight and one-half pound (8½) living baby. In another instance, I was called in consultation to see a primaparous woman who had been in labor thirty-six (36) hours, and was according to her attendant, not making satisfactory progress. In this case, I found a true conjugate of 7.5 cm., and yet the recorded measurements were normal. When it comes to measurements of the outlet, conditions are still worse. These measurements are rarely recorded by the average doctor and when taken, are absolutely unreliable. I mention these instances only to show the lack of cooperation between the hospital management, which is trying to give the prospective mother careful and honest obstetric care, and the doctor, who still figures that labor is a normal process and is practicing slovenly methods in obstetrics. I have taught obstetrics for twenty-five years, and have never failed to stress the value and teach the methods of doing pelvic measurements, as has every teacher of obstetrics, and yet we find this deplorable condition existing, due either to a lack of interest or want of knowledge of how to carry out this important procedure.

While the pelvic measurements do not give absolute information regarding the outcome of labor, they are of sufficent importance to warrant the practice in every case. Pelvic measurements are only of relative value; of value only when taken in conjunction with a knowledge of the size of the child's head, since it must be remembered that the disproportion between the child's head and the pelvis is more important than the size of either alone, and that pelvic measurements are of little value, except in rare cases, unless taken into consideration with other important factors involved in the delivery.

We have for a long time been in the habit of dividing the indications for cesarean section into two great classes. The absolute indication and the relative indication.

It is generally agreed that whenever the true conjugate measures 5 cm. or less, cesarean section is absolutely indicated, regardless of the condition of the patient, or of the duration of labor or possible presence of uterine infection, since in such cases of extreme pelvic contraction, the delivery of a normally developed or even small fetus is practically impossible, even after embryotomy. This is practically the same indication that obtained in early days, when the mortality resulting from this operation was so high that the prognosis was almost hopeless. At present, however, this limit has been extended. In view of the satisfactory results following sections under proper conditions, it is now held that cesarean section is absolutely indicated in all pelves measuring 7.5 cm. or less whenever the child is full term and alive, the mother uninfected and the surroundings suitable for an operation of that character.

If, however, the patient has been seriously exposed to infection and has been in labor a long time, and is showing signs of exhaustion, the prognosis of the conservative operation will probably be sufficiently doubtful to indicate a modification of the classic procedure. Either a supravaginal hysterectomy, a low cervical operation, or possibly a Portes operation should be done. On the other hand in cases of this type, when the child is in poor condition or dead, craniotomy is the operation of choice, since section of patients late in labor is never justifiable, except in the interest of the child. In other words, the interest of the child may at times be the factor to render a serious risk to the mother justifiable, but unless it seems almost certain that the life of the fetus can be guaranteed by running these grave risks to the mother, her interest alone should be considered, or if the family after understanding the risk to the mother insist that the child be given every possible chance.

In that group of pelves designated as the borderline types, viz., with a conjugata vera between 7.5 cm. and 8.5 cm. in flat and 7.5 cm. to 9 cm. in generally contracted pelves, the operation likewise may be indicated. In patients with this type of pelvis a spontaneous delivery is sometimes possible, or at least, the delivery of a liv-

ing child is often accomplished, with the aid of forceps or some other simpler obstetric operation. The course of labor in such cases, however, depends not only upon the degree of pelvic contraction, but more particularly upon the size and consistency of the fetal head, and the character of the uterine contractions, but it must not be thought that the mere possibility of a delivery through the pelvis is the only factor to be considered, but the effect of a severe labor on the further life of the mother, with the chance of serious traumatisms, must be kept in mind. Given two women with practically identical pelvic measurements, and the children of the same size, may have entirely different deliveries. One may have an easy spontaneous labor, while the other may require a major operation. It is this class of so called borderline pelves that cause the obstetrician the greatest amount of anxiety and exact from the attendant the exercise of the greatest judgment to determine which case may be safely left to nature, and which should be operated upon. I am often confronted with such problems and not infrequently at a loss to make a decision.

If the patient is a multipara, the history of the previous labor or labors may be helpful. If serious disasters have previously occurred, cesarean section should be chosen without hesitation, unless one is convinced that the present child is considerably smaller than the previous ones, or that one can determine that the previous mishaps were due to poor obstetric judgment or technique.

It is generally a fair rule to say that when a woman with a borderline pelvis has lost one child as a result of difficult labor, cesarean section should be done in succeeding pregnancies, and this is particularly true when more than one child has so been lost. However, in many cases the ultimate result depends on other factors than the size of the fetal head and the size of the maternal pelvis, it depends on factors which cannot be determined until the patient has been in labor for some time. Such things as the frequency and strength of the uterine contractions, the time at which the membranes rupture, the rigidity of the soft parts, and the moldability of the child's head, must all be taken into consideration. So it may be that the woman will lose two children before the obstetrician has made up his mind that cesarean section should be done.

In women with pelves of only moderate contraction of the true conjugate diameter, cesarean section will seldom become necessary, unless in such cases in which the child is over-developed. Contractions of the pelvic outlet do not uncommonly call for cesarean section, but here too more than the mere pelvic measurement must be considered. Williams has shown that contraction of the outlet of the pelvis is the most common form of contraction met in the white woman, and yet, how often do we not see the measurements of the outlet entirely omitted. It is generally claimed that a transverse diameter of the outlet of 7 cm. or less, is a positive indication for section, but I do not believe that one is justified in making the statement so dogmatic, for one is often surprised to see spontaneous labor in marked contractions of the outlet, and again seriously complicated labors in only moderate contractions. More depends on the posterior sagittal diameter than upon the transverse diameter. This diameter is the distance between a line joining the ischial tuberosities and the tip of the sacrum. Its size varies with the degree of arching of the pelvis.

Many other pelvic indications exist for the performance of this operation, such as kyphotic pelves, oblique pelves, spondylolisthetic pelves, etc., but time will not permit a discussion of these. Numerous non pelvic indications have arisen in the course of time, such as tumors of the uterus and other pelvic organs. In the majority of cases of fibromata of the uterus no complications arise. The effect which they produce, however, varies with their size, number and location. Cervical fibroids occasionally interfere with proper dilatation, and occasionally fibroids produce sloughing in the puerperium and for fear of such results, cesarean section may be considered. Large fibroids, particularly of the lower uterine segment, may so obstruct the pelvis as to make spontaneous delivery impossible and render the entrance of the fetal head into the pelvis hopeless, but since these tumors often rise out of the pelvis late in pregnancy or after labor has progressed for some time, it is well to delay decision as to the best method of treatment until the patient goes into labor.

Cancer of the cervix uteri complicating pregnancy may in some instances be a

reason for cesarean section, but rarely so.

Ovarian tumors not infrequently complicate pregnancy, and add greatly to the danger of the delivery. Twisting of the pedicle during pregnancy requires, of course, immediate operation. When the tumor is discovered early in pregnancy, it should be removed, since it has been found that such operations rarely interfere with the further progress of pregnancy. On the other hand, when the tumor is discovered late in pregnancy, the treatment will vary with the conditions found. If the tumor is freely movable with a long pedicle, it should be removed at any time before the last month of pregnancy. It is not an indication for cesarean section, unless, it is so situated that it will block the pelvis canal. Postural treatment is often effectual.

In considering the performance of cesarean section for whatever cause, one must always bear in mind that a repetition of this operation may become necessary, and while the dictum that certain authors have laid down "once a cesarean, always a cesarean" is exaggerated, this is nevertheless often times true.

The occurrence of pregnancy after a classical section is not without danger, since rupture through the former incision happens in from 1 to 4 per cent. The rupture may occur any time after the seventh month, but is particularly likely, if the patient is allowed to go into labor. If it is certain that the former wound was properly sewed and that it healed without infection, one might allow the woman to go into labor, provided, of course, that the cause which prompted the first section is no longer present. In such cases, labor should be watched carefully and the patient delivered with forceps as soon as the head reaches the spine. My personal opinion is that the test of labor is dangerous.

I cannot allow this opportuuity to go by without expressing my views regarding the performance of cesarean section in the treatment of eclampsia and in placenta praevia. It is generally claimed that section in the hands of the experienced obstetrician gives better results than conservative treatment in the hands of the inexperienced, in cases of placenta praevia, but this is a poor argument, for placenta praevia is a serious condition and the inexperienced should not be treating such a grave complication of pregnancy. The bad results attending the treatment of placenta praevia in the hand of the inexperienced has led many surgeons to recommend section as a routine procedure. In looking over the figures which I have before me, I think anyone must admit that the routine section is ill advised.

COMPARATIVE MORTALITIES IN PLACENTA PRAEVIA

Conservative Measures

Series	Mortality
Bourse	5.9%
Blacker	1.7%
DeNormandie	4.0%
Hitschman	1.6%
Jeliett	3.6%
Whitehouse	4.2%

Cesarean Sections

Series	Mortality
Essen Moller	12.5%
Hitschman	3.6%
Holland	11.5%
New Orleans	7.3%

In those rare cases occurring in primipara with an undilated cervix and a living or viable child, cesarean section may be indicated, but for the most part better results will be obtained by conservative measures. Our methods of treatment are not so much at fault as is the failure on the part of the attendant to recognize the symptoms which point to the existance of a serious condition and delay in the treatment. I feel that the routine adoption of section for this condition will result in an increased, rather than a decreased mortality. The advocates fail to realize that for the most part these cases are seen when infection has either occurred or is likely to occur, and that the fetus is already jeopardized by the maternal bleeding, and is in a great number of instances, so premature that it can never storm the vicissitudes of extra-uterine life.

Regarding the practice of cesarean section in cases of eclampsia, I feel that this is rarely ever a justifiable procedure. The mortality figures range from 24 per cent to 66 per cent, while the mortality figures in cases treated conservatively range from 2.6 per cent to 18.9 per cent. Stoeckel of Germany, however, shows a remarkedly low mortality, viz., 8.4 per cent out of one hundred nineteen (119) operations, but since he performs cesarean sections immediately after the first convulsion it seems likely that many operations are performed unnecessarily. Many mild cases would, no doubt, have recovered under conservative treatment.

CONCLUSIONS

1. Cesarean section is a greatly abused

operation and is not capable of displacing vaginal operative procedure.

2. Cesarean section is often a dangerous obstetric operation, and not always a life saving operation for the child.

3. The broad indications for section to save the child's life at the expense of the mother's has no place in obstetrics.

4. Since cesarean section can influence the health and well being of the woman, who is responsible for the increase of the race, and can diminish her chances for further healthy propagation, the operation should be done only after very carefully weighing the indications, and with a full knowledge of the responsibility in the matter, and should then be done only by an experienced obstetrician. One's knowledge of obstetrics is shown particularly in the handling of cases of contracted pelves, where patient waiting is so often crowned with success.

5. The practice of operating unnecessarily in order to lower ones mortality statistics is to be condemned, but a way must be selected which will offer the greatest number of permanent recoveries and cures, in cases of eclampsia and placenta praevia.

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COMPARISON OF PREGNANCY TESTS

Milo R. White and Alvin O. Serverance, Detroit (Journal A. M. A., Oct. 31, 1931), found that in 191 Aschheim-Zondek reactions there were 20 instances in which the result did not check with the final diagnosis. There were five false positive reactions among sixty-nine controls which were not pregnant. There were twenty-nine observations in a group of ectopic pregnancies and incomplete abortions, fourteen of which were negative. In only one case of pregnancy was the Aschheim-Zondek reaction negative. The Brouha reaction was uniformly positive in a group consisting of sixty normal pregnancies, ten ectopic pregnancies and nine incomplete abortions. However, there were ten false positive reactions in a series of twenty-seven nongravid women. Four of these showed hypertrophy of the endometrium; three complained of menstrual irregularity, and one had tuberculous salpingitis. The Friedman test was observed in forty cases. In the groups of normal pregnancies and nongravid controls there were thirty-two observations, all of which were correct with one exception. In this case which proved to be a normal pregnancy, the reaction was carried out on the thirty-second day after the last menstrual period. There were four ectopic pregnancies, which gave two positive and two negative reactions. There were four incomplete abortions, three of which gave positive reactions. The tests of Achheim and Zondek and of Brouha gave false positive reactions which probably depended on some endocrine disturbance. In such cases a consideration of the history usually prevents confusion. In the groups of ectopic pregnancies and incomplete abortions, the Aschheim-Zondek reaction was of value as a diagnostic procedure in 51 per cent of the cases, whereas the Friedman reaction was of diagnostic value in 62 per cent of the cases. The Brouha reaction was uniformly correct; however, this reaction does not lend itself as a practical diagnostic aid in cases of this type because of the time required for carrying out the test. In cases of suspected normal pregnancy the Brouha reaction possesses distinct advantages over the Aschheim-Zondek reaction in that the results are determined macroscopically, and nearly mature test animals may be used. The advantages of the Friedman reaction are that only one test animal is required and that the reading may be made macroscopically at the end of from twenty-four to forty-eight hours. In view of the authors' own experience and that of others who have reported a total of 300 observations, they believe that the Friedman test is a dependable biologic reaction and a suitable laboratory procedure. The tests of Aschheim and Zondek, of Brouha and of Friedman depend on a quantitative change in the amount of active principle that is excreted in the urine during pregnancy. This active principle is presumably anterior lobe hormone. A substance specific to pregnancy has not been demonstrated. The serum test of Manoilov and the pupillary reaction of Bercovitz have been of little value as diagnostic aids.

PYREXIA IN MALIGNANT NEPHROMA (HYPERNEPHROMA)

The occurrence of fever in malignant nephroma of the kidney in two cases in a series of seventeen of these tumors at the University Hospital has served to focus the attention of C. D. Creevy, Minneapolis (Journal A. M. A., April 13, 1929), on it, particularly since a knowledge of this relationship might have served to clarify the preoperative diagnosis in the first case. In this series of seventeeen cases of malignant nephromas, fever was a prominent feature in two, or 11.7 per cent. Elevation of the temperature to above 100 F. was present in three other cases, but was associated with an obvious complication in each instance. Only four cases of mixed tumor of the kidney in infancy occurred in the group, and all of these were afebrile. He concludes that pyrexia is not an infrequent accompaniment of malignant nephroma (the so-called hypernephroma). It probably has its orgin in the formation by the tumor of an abnormal product of neplastic metabolism. The presence of fever may assist in rather than obscure, the diagnosis of malignant nephroma. Malignant nephroma should be considered whenever an obscure fever is present.

HABITUAL DISLOCATION OF THE STERNOCLAVICULAR ARTICULATION–A CASE REPORT

E. EUGENE RICE, M.D.
SHAWNEE

Habitual dislocation, either spontaneous or traumatic, of the sternoclavicular joints are not common and a brief review of the literature does not give much information as to the etiology, pathology or the best method of treatment.

Etiology: The condition may be either spontaneous or traumatic. The most common is of traumatic origin usually following lifting heavy objects with the arms abducted and extended, although it may follow a severe trauma of the shoulder girdle.

The spontaneous dislocation may be present from congenital origin, not as a complete deformity, but usually develops gradually later in childhood or adolesence with the increase in functional activity. Congenital dislocations may often be associated with other congenital defects as in the case report of Kunne in which the condition was preceded by a congenital dislocation of the hip.

Pathology: The condition at operation of the joint varies usually with the cause of the dislocation. In the acute traumatic type there is usually a rent in the capsule with pericapsular and capular thickening, a loss of synovial fluid, and a laceration of the meniscus. In the spontaneous type there is usually found a markedly relaxed capsule without any evidence of a tear and the articular cartliage is usually attached to the clavicle. The joint cavity itself is usually increased in size and there is a larger amount of synovial fluid.

Symptoms: In traumatic injuries of this type there is always pain associated at once with the injury and which recurs each time the dislocation recurs. Swelling at the site of dislocation is associated, at first rather large, but as the acute condition subsides the swelling is limited to the size and site of the head of the clavicle.

The spontaneous condition may be noted only when the deformity is noted at the base of the neck, as in this case report, or may be noted only as a deformity when the arms are lifted above the horizontal, when there is usually a snap and some pain associated and a noticable increase of the deformity present, because the joint is again dislocated.

Usually when once this joint is dislocated there is a habitual dislocation with any attempt at using the arms, and this recurrent deformity and the associated pain requires operation for a permanent cure.

Diagnosis: The diagnosis is usually not difficult as the deformity is very apparent and recurrent with the associated pain and swelling, especially following a history of trauma.

An X-ray confirms the diagnosis, but is not essential because the typical location and deformity confirms the diagnosis, although an X-ray should always be done in the acute traumatic cases to eliminate any possibility of an associated fracture.

Usually when the condition is once present it reoccurs until proper operative treatment is instituted.

Treatment: Reduction of the dislocation is usually easy, as abduction of the arms and a lowering and straightening of the shoulders brings the dislocation into correct position and in the acute conditions immobilization should be maintained for three weeks before any motion is instituted and then only too often the condition becomes habitual and requires operative treatment.

Operative arthrodesis offers the only permanent cure for this condition and should be done when the condition causes any discomfort or disability.

The technique consists of adequate exposure by the most inconspicuous scar, opening of the joint cavity, removal of the articular cartilages and a fixation of the head of the clavicle to the sternum. This

fixation may be done with rustless wire or as in this case with kangaroo tendon, then closure of the joint without drainage, and proper immobilization of both shoulders for three to four weeks, then gradual return of function and after eight to ten weeks full return to duty.

CASE REPORT

A. B., a tall, thin, white female of 19, whose weight was 97 pounds, height 66 inches, three years ago first noticed a swelling at the base of her neck on the right side while looking in the mirror and this deformity was found to be tender on palpation and increased on raising the arms. This gradually became more marked and every time the arms were raised above the horizontal the deformity became more marked. About four months later the left side was noticed to be in the same condition and the condition was becoming more painful and disabling the girl from her occupation as a clerk.

There was no history of previous illnesses or deformities and the general physical examination was normal. The white blood count was 6800, urine normal and the Wassermann was negative.

A diagnosis of bilateral habitual dislocation of the sternoclavicular articulation was made and an arthrodesis was done.

Under general anaesthesia a low collar incision resembling a thyroid incision was made and the skin flap was reflected. The joints were exposed and opened and the cartilage of the head of the clavicle and its articulation on the sternum were removed completely, a diagonal drill hole made through the head of the clavicle and the sternum, care being taken that the hole did not go through the posterior aspect as there was danger of damage to the mediastinum, and the ends of the clavicle and sternum closely approximated and fixed with kangaroo tendon. The joint capsule closed tightly and the subcutaneous tissue and skin closed without drainage.

A clavicular T-splint was applied with a pad under each shoulder to hold them forward and keep the clavicle and sternum in apposition. This was worn for four weeks during which time the patient was ambulatory and very comfortable, after which time she was given gentle exercise and gradual return of the use of the shoulders and was able to return to work at the end of two months.

Examination after six months revealed slightly enlarged sternoclavicular joints with some return of function which were not painful or tender and there had been no recurrence of the dislocations.

1. Ortenberg, H. von: Die habituelle Luxation der Klavikula und ihre Behandlung (Habitual dislocation of the clavicle and its treatment). Medizinische Klinik 18:1642; 643, December 24, 1922.

2. Kunne, Bruna: Ueber habituelle symmetrische Verrenkung des Sternoclaviculargelenks. (On habitual clavicular articulation). Zeitschrift fur Orthopadische Chirurgir 40:247-257, 1920-21.

3. Grunert: Zur Operation der Luxatio clavicularis praesternalis. (On the operation of presternal dislocation of the clavicle). Medizinische Klinik 6:864-865, May 29, 1910.

4. Jean, G.: Habitual suprasternal dislocation of the clavicle treated by osteosynthesis. Bull. et mem. Soc. November 7, 1923.

REPLACEMENT OF THUMB NAIL

J. Eastman Sheehan, New York (Journal A. M. A., April 13, 1929), reports the case of a boy, aged 16 years, who suffered the loss of the nail from the left thumb. At the time he was examined, there was no longer any nail growth; at about the level of the lunula there was a disintegrating mass, while toward the point of the thumb the nail bed had given place to cicatrized tissues, warped and folded in leaves. There was considerable pain. It was evident, especially in view of the failure of previous interventions, that the problem was one of replacement—of introducing a nail that would grow. From this consideration two questions arose: Could nail substance transferred to an area in which growth had ceased be expected to grow? If so, from what area should it be taken, and what would be the subsequent history in the area to be denuded? On reflection as to the nature of the nail substance and as to the process of its production, it was recognized as being as truly epithelial as the epidermis itself, and no one who has had experience with reconstructive surgery can fail to have been made aware of the complete dependability of the epidermal graft. The nail of the thumb of the other hand, to which the new one would be expected to conform, must be the donor, rather than the nail of the great toe, the only other practicable resource. The replacement of one thumb nail by a graft from the other thumb seemed therefore to be beyond prospect of disadventure, and the procedure was carried out in that belief, which was completely justified by the result. There was nevertheless a moment of dramatic interest when, on removal of the bandages, inspection disclosed that healthy growth was proceeding on both nails. Thus there was once more triumphantly vindicated the dependability of grafts whose dependence is on the nourishment of living epithelial cells by the lymph fluid present in the tissues of the base, the exceptional feature in this case being the relatively exaggerated thickness of the nail substance as compared with the horny layer of the skin epidermis.

THE JOURNAL

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Medical Arts Building, Tulsa, Okla.

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Memorial Station, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

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EDITORIAL

HOME SWEET HOME

In August, 1924, without solicitation upon the part of the writer, he was appointed upon the surgical service at the U. S. Veterans' Hospital at Muskogee. The work very nicely fitted in with that necessary in the editorialship and secretaryship of the State Medical Association, neither conflicting with the other. For more than seven years the writer was actively engaged in surgical work; during the last three fiscal years performing, personally, more than 500 surgical operations of various types, during each year. So far as is known most of this work was satisfactory, the beneficiaries leaving as satisfied friends and today they are scattered over the states of Kansas, Missouri, Arkansas and Oklahoma, to the Rio Grande and occasionally stray cases from the southeastern states. Notwithstanding this work, and the fact that practically every surgical case in a 400 bed hospital came under the observation, more or less, of the writer, and that he maintained a surgical ward practically full at all times, some higher authority in the Veterans' Bureau deemed it best that he be transferred to Kansas City, Missouri, a hospital they termed as one of their "choicest locations." Notwithstanding every effort upon the part of the writer and his friends the transfer was insisted upon. As an experiment it was attempted, but it cannot be recalled in years of a long life that the four months, partially spent in Kansas City, were more unsatisfactory, accompanied by more homesickness, and of practically uselessness to the beneficiaries of the Veterans' Bureau, than those proved to be. The experiment was simply too much for the writer, so, after consideration, it was decided that regardless of the economic situation, regardless of what the future might present, a return to Oklahoma, to *home*, his hundreds of friends, was the best thing to do. With this in mind a resignation was tendered, effective not later than January 15th. The writer, aside from making several return trips to the state, permanently returned late in December.

This will be appreciated when it is understood that the writer, your editor, has spend forty-nine years of his life in what was formerly known as Indian Territory, and now called Oklahoma. The members of the Oklahoma State Medical Association may thoroughly appreciate that the writer feels very much the impelling motive that prompted the song "Home Sweet Home."

MEDICAL RESERVE OFFICERS' SITUATION

The Medical Society of Virginia passed the following resolution, reading in part as follows:

"Resolved, That the Medical Society of Virginia, desiring that the medical profession may be of the greatest service to our country, respectfully suggest that the best interests of the military service might

be enhanced if the regulations regarding the Organized Reserve were changed to provide for the recommission and reassignment of officers holding assignments such as those mentioned in the second paragraph, even though they may not have completed the required amount of military work, and hereby recommend consideration of such change."

This seems to the writer to be a very correct position. In the first place the function of the surgeon in the army is to treat the sick. Of course, we all know that any physician and surgeon takes a keen delight in regularly attending their sessions, as Medical Reserve Officers. However, there are a large number of eminently qualified surgeons who simply cannot find the necessary two weeks' time demanded by Reserve Corps duty, the result is that eventually they are automatically dropped from Reserve Corps membership. It should not be forgotten that in case of war the medical service, even if to say so sounds unpleasant, is divided strictly into two types of men; those attending strictly to the ill are highly qualified physicians and surgeons, but who know little or nothing of the voluminous paper work demanded from an officer on active duty. On the other hand there is a certain type of physician who dearly loves to "paw" over papers and carry out the necessary routine. These men are largely "paper" surgeons. In time of war, the best medical and surgical service possible should be instantly available, but it seems that it would be much better to every competent internist or surgeon assigned as aide to him, someone who knows thoroughly the paper work demanded.

It would seem that the Surgeon General should be permitted the power of discretion to recommission men of high type, whether they are able to attend Reserve meetings or not.

HANDLING THE CRIMINAL AND THE CHARITY CASE

After many years of observation the writer concludes that there is something radically wrong with the present system of counties, towns, cities and County Commissioners in most sections of Oklahoma, where the charity cases are a problem. It is an irritating fact that the most worthless murderer or criminal is not permitted to go to trial without representation by an attorney and if he has no funds the Court promptly appoints an attorney who does his best for the criminal, and then the Court digs into the taxpayers' funds and pays the attorney a nominal fee for his work. Not so with the charity case. Except in a few organized localities city officials and County Commissioners pay little or no attention, often no attention or any sort of remuneration for the care of charity cases. Often these cases are good, but unfortunate people. Take for instance, a compound fracture of the femur, probably the most difficult problem confronting the surgeon. The moment the accident occurs the case is hurried to the hospital, no one raises the question as to who will pay the bill, a surgeon is called in to give him the best of his attention. The hospital provides him with nursing, food and drugs and in the end all of them are left with the bag to hold.

It is wrong; it is remarkable that the state should go to such ends to protect, sometimes the palpable wrong-doers and at the same time foster upon the hospital and physicians the long drawn out care necessary to these cases. Certainly something should be done in every county and city of the state to remedy the injustice.

DOCTOR STARR JUDD ON SPINAL ANESTHESIA

Through some misunderstanding, the press dispatches from Oklahoma City, at the time of the Oklahoma City Clinical Conference, carried the impression that Dr. Judd was opposed to the use of spinal anesthesia. A personal communication from Dr. Judd notes that he does use spinal anesthesia in the lower abdomen and under certain circumstances he also uses it for upper abdominal surgical work. This should set the matter at rights so far as Dr. Judd is concerned, for in the last analysis a surgeon makes up his mind in advance as to which type of anesthetic is preferable in any given case.

It may be of interest to the membership of the Oklahoma State Medical Association to know that the writer, in collaboration with a colleague, has a record of approximately 2000 or more operations performed under spinal anesthesia. In no case was there a fatality due to the anesthesia and in practically no case was there any alarm brought about by its use. Many of these cases were surgery of the upper

abdomen, especially of the gall-bladder and duodenum.

LOW COST HOSPITAL SERVICE

A recent editorial in the Kansas City Star is devoted to an explanation of an important experiment which has just completed its first year in the City of Boston, and having to do with the poor or those unable to pay more than a nominal sum for nursing, hospitalization and medical treatment. The Baker Memorial Hospital, one of 330 beds, and which has available the services of some 200 members of the staff of the Massachusetts General Hospital, was the institution set aside to undertake the experiment. A standard scale of charges was agreed upon, the charges varying for operations, from $25.00 to $150.00 (even this little sum, during the present depression is sometimes practically impossible of attainment, by people who otherwise have been financially in good condition). However, regardless of the prolongation and severity of the case no more than that was charged. Only one bill was presented, and that by the hospital, which included medical and surgical fees, the physician receiving his part through the hospital. There were 2,476 patients admitted. A detailed study was made of 503 cases. The family income ranged from between $1,000 and $3,000 a year. The average total fee was $160,00, with $89.00 for hospital care, $59.00 for professional services, and $12.00 for special nursing. Half of these patients paid hospital fees of less than $70.00 and doctor's fees of less than $50.00 and only fifty-nine had special nursing.

It seems this system should deserve some special study by the medical profession. Regardless of the family's ability to pay, they must have medical and surgical attention and the burden of hospitalization should be made as lightly as possible.

As pointed out before, the town, city and state should assume more obligations than they have heretofore in caring for these cases. Cartainly the hospitals, nurses and physicians should not be imposed upon as they are imposed upon at present. We have pointed out before, however, the tendency of hospital and patient, in the excitement of sudden and serious illness or accident, to demand of the hospital the very best service, including the finest room, special nursing, etc., only to be found unable to pay fees incident to that type of service. The medical profession should probably make it a part of its duty to guage the ability of the patient to pay and should emphatically advise them not to engender bills and expenses which only the rich and well-to-do can afford. There is no question but what special nursing is greatly overdone in many hospitals and there is no question but what many patients should go into two or more bed wards rather than into private rooms, with bed, special nurse and similar expensive luxuries. Much of this situation might be relieved by the physician assuming the role of emphatic advisor to his patient.

THE FORTIETH ANNUAL SESSION

Tulsa, May 24, 25, 26, 1932.

Hotel Headquarters, Hotel Mayo.

Surgical Section: Chaiman, Dr. Fred S. Watson, 401 Commerce Bldg., Okmulgee, Oklahoma.

Secretary, Dr. W. G. Husband, Hollis, Oklahoma.

Eye, Ear, Nose and Throat: Chairman, Dr. A. L. Guthrie, Medical Arts Bldg., Oklahoma City, Okla.

Secretary, Dr. J. F. Gorrell, Medical Arts Bldg., Tulsa, Okla.

General Medicine: Chairman, Dr. Henry H. Turner, 1200 North Walker, Oklahoma City, Okla.

Secretary, Dr. Fred H. Dorwart, Barnes Bldg., Muskogee, Okla.

Dermatology and Radiology: Chairman, Dr. Charles J. Wood, Medical Arts Bldg., Tulsa, Okla.

Secretary, Dr. Carl L. Brundage, Medical Arts Bldg., Oklahoma City, Okla.

Pediatrics: Chairman, Dr. C. E. Bradley, Medical Arts Bldg., Tulsa, Okla.

Secretary, Dr. Geo. H. Garrison, 1200 North Walker, Oklahoma City, Okla.

TULSA COUNTY COMMITTEES

Doctor W. J. Trainor, Tulsa, Chairman of the Committee on Arrangement, on behalf of the Tulsa County Society, announces the following Committees to hand-

le the work of the annual meeting, at Tulsa, May 24, 25, 26, 1932:

General Chairman. W. J. Trainor, 1011 Medical Arts Bldg., Tulsa, Okla.

Registrations. C. C. Hoke, Petroleum Building, Tulsa.

Finance. W. Albert Cook, 1107 Medical Arts Bldg., Tulsa.

Entertainment. W. A. Showman, 409 Medical Arts Bldg., Tulsa.

Hotels. James Stevenson, 615 Medical Arts Bldg., Tulsa.

Golf. Charles J. Wood, 511 Medical Arts Bldg., Tulsa.

Ladies' Enterainment. Womens' Auxiliary of The Tulsa County Medical Society, Tulsa.

Reserve Officers. Paul R. Brown, 517 Medical Arts Bldg., Tulsa.

Scientific Exhibit. Morris B. Lhevine, 1007 Medical Arts Bldg., Tulsa.

Fraternal Dinner. Ralph A. McGill, 1010 Medical Arts Bldg., Tulsa.

Badges. J. C. Brodgen, Mayo Bldg., Tulsa.

CLINICS

FIRST DAY

The following announcement is made as to Dry Clinics:

Dr. E. Rankin Denny, General Medicine, 9:00 A. M.

Dr. N. R. Smith, Neurology, 9.15 A. M.

Dr. C. H. Haralson, Eyes, 9:30 A. M.

Dr. M. O. Nelson, Bacteriology, 9:45 A. M.

SECOND DAY

Dr. A. Ray Wiley, Surgery, 9:00 A. M.

Dr. Henry Brown, Urology, 9:15 A. M.

Dr. D. O. Smith, Medicine, 9:30 A. M.

Dr. H. D. Murdock, Surgery, 9:45 A. M.

The particular subject to be decided on later.

Editorial Notes—Personal and General

KEYES, OKLAHOMA, through the Secretary of its Commercal Club, Mr. H. H. Koontz, wishes very much to have some doctor locate in that town. Anyone interested should write the Secretary.

OTTAWA COUNTY MEDICAL SOCIETY elected Doctor F. V. Meriwether, Miami, president; and Doctor J. W. Craig, Miami, secretary-treasurer to fill out the term of Dr. W. G. Chesnut, who is in New York for a year.

CHOCTAW COUNTY MEDICAL SOCIETY elected the following officers for 1932, at their December 1931 meeting: Doctors G. E. Harris, Hugo, president; W. N. John, Hugo, secretary-treasurer; C. H. Hale, Boswell, delegate.

DOCTOR ROY FISHER, Frederick, who is a licensed pilot has been appointed State Flight Surgeon for Oklahoma by the Highway Commission. Dr. Fisher is also one of the Medical Examiners for the Aeronautical Branch of the Department of Commerce.

ADAIR COUNTY MEDICAL SOCIETY met in regular session at Westville, December 2nd, 1931, and elected the following officers for 1932: Doctors R. M. Church, Stilwell, president; R. L. Sellars, Westville, vice-president; D. P. Chambers, Stilwell, secretary-treasurer.

CANADIAN COUNTY MEDICAL SOCIETY met Wednesday, December 30th at El Reno for the election of officers for 1932. The following were elected: Doctors D. F. Stough, Geary, President: A. L. Johnson, El Reno, vice-president; Freeman Stough, Geary, secretary-treasurer.

WAGONER COUNTY MEDICAL SOCIETY elected the following officers for 1932, at their December meeting: Doctors J. R. Waltrip, Coweta, president; J. R. Plunkett, Wagoner, vice-president; John D. Leonard, Wagoner, secretary-treasurer; J. H. Plunkett, Wagoner, delegate.

MARSHALL COUNTY MEDICAL SOCIETY met December 15th for installation of officers for 1932. The following were elected: Doctors P. F. Robinson, Madill, president; J. H. Logan, Lebanon, vice-president; J. H. Veazy, Madill, secretary-treasurer; J. L. Holland, Madill, delegate.

DOCTOR C. A. THOMPSON, after a few dismal weeks in Kansas City resigned from the Veterans' Bureau, and has returned to Oklahoma, for the purpose of making it his future home. Dr. Thompson's new address as well as that of the secretaryship will be 810 Manhattan Building, Muskogee.

DOCTOR LEWIS J. MOORMAN, Oklahoma City, was elected President of the Southern Medical Association, at the New Orleans meeting. This election is a distinct recognition of one of Oklahoma's outstanding physicians. The Journal and his many friends congratulate Doctor Moorman upon his election.

STEPHENS COUNTY MEDICAL SOCIETY met December 29, 1931, and elected the following officers for 1932: Doctors J. L. Patterson, Duncan, president; J. B. Carmichael, Duncan, vice-president; D. Long, Duncan, secretary-treasurer; D. Long, delegate; A. M. McMahan, Duncan, Committee on Public Policy.

GARFIELD COUNTY MEDICAL SOCIETY elected the following officers at heir annual meeting, held at Enid, December 17th: Doctors

D. D. Roberts, president; C. W. Tedrowe, vice-president; John R. Walker, secretary-treasurer; W. G. Kiebler, member of board of censors; S. H. McEvoy, delegate; all of Enid.

OSAGE COUNTY MEDICAL SOCIETY elected the following officers for 1932 at their annual meeting, held in January: Doctors Roscoe Walker, Pawhuska, president; C. H. Guild, Shidler, vice-president; M. E. Rust, Pawhuska, secretary-treasurer; Roscoe Walker, C. H. Guild, T. J. Colley, board of censors; Divonis Worten, Pawhuska, delegate; B. F. Sullivan, Barnsdall, alternate; C. K. Logan, delegate, Roscoe Walker, alternate.

WOODS-ALFALFA COUNTY MEDICAL SOCIETIES held a joint meeting at Cherokee in December, electing the following officers: Woods County—Doctors A. E. Hale, Alva, president; D. B. Ensor, Hopeton, vice-president; O. E. Templin, Alva, secretary-treasurer; W. E. Simon, Alva; R. L. Hall, Waynoka; Elizabeth Grantham, Alva, censors. Alfalfa County—Doctors A. J. Butts, Byron, president; L. T. Lancaster, Cherokee, secretary-treasurer.

THE AMERICAN SOCIETY for the Study of Goiter is again offering an award of Three Hundred Dollars ($300.00) for the best essay based upon original research work on any phase of goiter, presented at their annual meeting in Hamilton, Ontario, Canada, June 14, 15, 16, 1932. Competing manuscripts must be in English and in the hands of the Secretary, J. R. Yung, M.D., Rose Dispensary Bldg., Terre Haute, Ind., not later than March 15th, 1932. The first award of the 1931, Kansas City, Mo., meeting was given Dr. Bruce Webster, Presbyterian Hospital, New York City.

SOUTHERN OKLAHOMA MEDICAL ASSOCIATION met at Purcell, Oklahoma, December 8, 1932. The following program was given:

1. Address of Welcome—Thos. P. Pace, District Judge, Purcell.

2. Response—C. W. Sprouce, M.D., Sulphur.

3. Some Physiological and Pathological Conditions of the Thyroid—G. E. Johnson, M.D., Ardmore.

4. Spinal Anesthesia—W. H. Livermore, M.D., Chickasha.

5. Examination of the Urologic Patient—A. R. Sugg, M.D., Ada.

6. Winter Bronchial Infections—W. S. Ivy, M.D., Duncan.

7. The Tonsils from the Standpoint of the General Practitoner and Specialist, also Demonstrating LaForce Instruments under Local and General Anesthesia—G. S. Barger, M.D., Purcell.

8. Banquet at Christain Church, 7:00 P. M.

9. The Relation of the Physician to the Patient—R. Q. Goodwin, M.D., Oklahoma City.

10. The Relation of the Public to the Doctor—G. N. Bilby, M.D., State Health Commissioner, Oklahoma City.

Visiting ladies were shown various social attentions—Tea-Bridge party, and a general good time.

MANGUM will hold a meeting fostered by the Extension Department of the State University on January 20th, beginning at one o'clock and continuing that afternoon and evening. The visiting faculty has been very carefully selected and consists of the following: Dr. E. D. Plass, head, Department of Obstetrics and Gynecology, University of Iowa, formerly of the Department of Obstetrics of John Hopkins University.

1. Contraceptive advice; Sterilization; Management of Normal Pregnancy.

2. (a) Abnormal Presentations and Positions. Occiput Posterior; Face; Brow; Transverse; Breech; Compound.

   (b) Prolapsed Cord. Recent Birth Injuries and Their Repair; Repair of Old Birth Injuries at Delivery.

Dr. J. R. Manley, Duluth, Minnesota:

1. Vaginal Discharge During Pregnancy (with slides).

2. Puerperal Sepsis.

Dr. W. T. McConnell, Associate Professor of Obstetrics, University of Louisville, School of Medicine:

1. The Importance of Prenatal Care.

2. The Toxinemial of Pregnancy.

Mangum physicians propose to make this one of the largest meetings ever held for Western Oklahoma physicians. It goes without saying that everyone who can should be present.

AMERICAN COLLEGE OF SURGEONS announces its 16th Annual Clinical Session, to be held in San Francisco the week of April 4th, 1932. The program, which is about complete may be secured at a later date from Mr. E. R. Loveland, Secretary, 133 South 36th, Philadelphia. More than sixty papers and addresses will be presented at the meeting, these indicating the recent trend of medicine. There will be papers and addresses especially devoted to physics and physiology of arteriosclerosis and hypertension. Among other things of interest that will be discussed: Congenital narrowing of the aorta and pulmonary arteriosclerosis; The effect of funnel breast on the heart and circulation atelectasis and tuberculosis; the treatment of cavities; some observations on pulmonary emphysema; and the role of bacteria in asthma. Topics on the liver will range from the element of error in the diagnosis of jaundiced patients and a very interesting study of primary carcinoma of the liver in hinese to the effect of the administration of glucose and insulin on the glycogen content of normal and pathological livers, and the pathology of the liver in exophthalmic goiter and the Grave's constitution.

The most modern concepts in the diagnosis of Bright's disease, nephritis and nephrosis are presented. Practical applications of recent discoveries in the field of gastrointestinal physiology; the clinical aspects of gastric secretions; the newest experimental and clinical work on the adrenal gland will be presented. Also the biological and clinical importance of ovary-stimulating substances. Studies of calcium metabolism and diseases of the parathyroid gland. The

newest knowledge on the nature of epilepsy and its treatment appear.

The mechanism of edema formation in disease; on leukopenia; on the action of benzol, roentgen rays and radium on the blood and blood-forming organs; relation of paranasal sinus infection to disease elsewhere; on the clinical significance of the atrophic tongue and on the experimental basis for vaccine treatment of chronic arthritis with a summary of the results of treatment.

The outstanding symposium of the session will bring to clinicians the results of the almost unbelievable advance to our knowledge of the involuntary nervous system. The anatomists, physiologists and clinicians will collaborate in this extremely important presentation.

The guest fee of $15.00 includes one year's subscription to the Annals of Internal Medicine, the official journal of the College, in which the papers and addresses read during the session will be published.

THE GENESIS OF SOCIAL INSURANCE

(This is the first of several articles upon Social insurance problems from the pen of Dr. Edward H. Ochsner. Dr. Ochsner is preparing to write six articles covering this subject. Probably no man in the country is better qualified to write upon this subject).

Social insurance is the hybrid offspring of impracticable sentimentalism and political expediency. It is an epidemic disease first observed in Germany about fifty years ago which has gradually spread and infected a considerable number of the nations of the earth and now has arrived at our very doors. Unless we succeed in establishing a rigorous quarantine of enlightened public opinion, it will surely gain a foothold in this country in the not distant future.

Social insurance consists of the following subdivisions or parts; Compulsory health insurance, old age pensions, widows' and orphans' pensions, and unemployment pensions or doles. In none of the countries were they all adopted at the same time. Germany adopted compulsory health insurance in 1883, and all of the other forms since that time. Austria adopted compulsory health insurance in 1888; Hungary, in 1891. England adopted old age pensions first and compulsory health isurance in 1911, and the others subsequently. In this country some of the states have adopted old age pensions and some widows' and orphans' pensions, but so far none have adopted compulsory health insurance, for which negative blessing let us raise our voice in thanksgiving.

When the scientific physician is confronted with the problems presented by a new patient, he meets the situation in the following manner: he obtains a complete family and personal history in order to ascertain if possible the causes which have brought about the condition; by his physical examination and laboratory investigations he finds out what variations from the normal have taken place; after all this he is in a position to advise and institute the proper treatment. Let us follow the same course in the study of this problem.

During the late seventies a number of German parlor socialists conceived the idea that the state make itself responsible for the medical care of its workers. The sentiment in favor of compulsory health insurance grew rapidly among the workers, and Bismarck, although expressing serious doubts as to the soundness of such a measure, yet feeling that something had to be done in order to appease the clamor of the proletariat and the alarming growth of socialism, adopted social insurance as a government measure, had a bill drafted and enacted into law.

In England, National insurance, as it is called there, had a slightly different setting but substantially the same background. In 1910, David Lloyd George in order to strengthen himself politically decided the time for such legislation was opportune. Not being able to speak German, he gathered about himself several interpreters, hied himself to Germany and after interviewing the well paid heads of the German system, and after having been wined and dined and lionized for two weeks or so, he returned to England very enthusiastic about the whole project, had a law drafted, and later secured its passage. In the recent parliamentary election the Liberty party, of which Lloyd George has been the head for many years, elected just four members to Parliament or less than one percent of the whole number. So while Lloyd George may have saved his political skin by National insurance in 1911, he certainly lost his hide by it in 1931.

Practically every reform movement attracts to itself a considerable number of well meaning, emotionally impressionable, impractical, irresponsible, very vociferous individuals, and very often a group, usually the very ones who manage the propaganda and who hope to gain some pecuniary benefit from it. Social insurance is no exception to this general rule.

Some of the common characteristics of reformers is that they want a new law passed for every human ill, and when the law is enacted, they either sit back waiting for the millenium to arrive or they rush off looking for new evils to correct by new laws forgetting to see to it that the law just passed is being properly enforced, and forgetting at all times that all laws must depend for their enforcement not upon supermen but upon men often of less than average intelligence and integrity, upon politicians and their henchmen, who are quick to see how these usually unsound and loosely drawn laws can be converted to their own advantage.

THE OKLAHOMA CITY CLINICS

The doctors of Oklahoma City have just finished what was pronounced by many to be the greatest meeting they have yet held. In spite of hard times, in spite of lack of funds, and in the face of more or less general pessimism, the officers and committees covered their ground well and arranged a program sufficiently broad and interesting to draw doctors from all surrounding states to our city. The Society having put its hand to the plow must not look back but must make a straight furrow and continue to cultivate its garden. The Southwest expects it.

The meeting was unique in many respects. More than 150 post-graduate lectures were delivered, some forty of which were by distinguished men from all over the United States. The scope of subjects was broad enough to touch

every field of medicine and the papers were uniformly well prepared. The schedule was so arranged that the visiting doctor could select any line of study which might appeal to him and follow it through for the entire four days. In addition to the scientific features the visitors were entertained so well that they had not a moment to spare from the time they arrived until the last number was given. They were banqueted, given stag suppers, invited to symposiums, entertained at roundtable discussions, and even offered a little vaudeville entertainment for variety. If such programs are continued from year to year there can be no doubt that Oklahoma City will make itself a leader along this line.

Clinical society programs of this type are a distinct innovation of the last ten years. They have many points of advantage over other meetings. They tend to break down sectional barriers and cause the outstanding men of the profession to be well known in every part of the United States. They likewise cause many doctors to take advantage of the inspiration and up to date methods of such leaders who never would take the time and trouble to go back east for post-graduate study. They offer a variety of program at minimum cost which was never before offered; and they are usually much better organized than haphazard programs which are heard at state and county society meeting, or lectures which the visiting doctor may happen to hear when he spends a week in a great Eastern center.

Building on this idea the Oklahoma City group is attempting to bring the finest possible talent to their meetings, increasing the size and scope of the program every year and adding entertainment features which prevent the men from becoming tired out. Among those who appeared on the program this year were Drs. Judd and Cabot of Mayo Clinic; Herrick and Beck of Chicago; Kern of Philadelphia; Dandy of Baltimore; Crossen and Vogt of St. Louis as well as many others who are equally eminent in special lines. The talks given by these men were classics of science and the doctors who heard them were well pleased and felt that their time was not wasted. Expressions of satisfaction were heard on all sides, both from members and non-members. The commercial exhibitors were unanimous in saying that it was an excellent meeting. They are all enthusiastic boosters and will help advertise it in the future. The total registration was in excess of 450, which was greater than the registration of a year ago; and every man who attended states that it is his firm intention to return next year.

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WOMAN'S AUXILIARY TO THE OKLAHOMA STATE MEDICAL ASSOCIATION

Editor Mrs. John Z. Mraz
Oklahoma City

American Medical Association Radio Talks.

After reading the account of the National Auxiliary activities at the annual meeting in Philadelphia, June 8-12, 1931, and after reading the reports of the various committees, the writer decided this would be a good time to introduce the American Medical Association Radio Talks.

Some auxiliaries through their public health chairman and advisory committee to the county medical society have already arranged for a weekly broadcast of health talks selected from the list furnished by the American Association. These talks already prepared are furnished free by the national association to save the busy doctor's time in writing them.

They cover a very wide range of subjects, from feeding the baby and upset stomachs to poisonous hair dyes and postponing one's own funeral. In fact they cover nearly every imaginable subject from the advent of a human into this world to his exit, assuming that human lived to a ripe age. Surely such a subject as, "The Carbon Monoxide Monster" would attract the attention of intelligent women. Now that the season has arrived when people are shut up in houses with doors and windows closed, and breathing, for the most part, air which is very dry without the addition of gases formed by the various fuels used for heating purposes, and the gases which escape even in small measure from mechanical iceboxes, would it not be a splendid idea to fortify against such insidious enemies?

The talks chosen to be given should be approved not only by the advisory committee to the county society but also by the county medical society, and should be delivered by a member, in good standing, of the county medical society. Any one or more of the listed talks may be secured free of charge from the Bureau of Health and Public Instruction, of the American Medical Association, 535 North Dearborn Street, Chicago, Illinois.

The county auxiliary's part is to:

(a) First take the list of radio talks to its advisory committee and secure the committee's approval and the co-operation of the county medical society in carrying on a radio program.

(b) Make the necessary arrangements with the broadcasting station.

(c) Secure from the A. M. A., the radio talks chosen by the county medical society to be given.

(d) If agreeable to the advisory committee, an auxiliary member may briefly announce the speaker, being sure to say that he is a member of_____county medical society and the American Medical Association.

Some such brief announcement as the following should be made:

This is the radio hour of the_____Woman's Auxiliary to the_____county medical society. The speaker is Dr. _____ a member of _____ county medical society and the American Medical Association. His subject is _____.

The writer listened in to a wonderful radio talk broadcast over the Columbia network Thursday, November 5, 1931, by Dr. Graham of New York county medical society. The Dr. was being interviewed by a Miss Ann Morgan. He dispensed some splendid advice to mothers having daughters in high-school, information concerning that important age, adolescence.

In 1930, the national chairman of publicity sent questionnaires to auxiliaries of all the states. Some states failed to respond and, although the report was incomplete, some interesting data was gathered. It developed that there was a decided preference for the educational work over the social and philanthropic and, especially health education over any other educational activity.

In that event then wouldn't it be a great oppor-

tunity for county auxiliaries to indulge themselves in Public Health education by instituting these radio talks so generously supplied by the American Medical Association.

It occurs to the writer, since preventative medicine is the doctor's slogan today, that this is a most seasonal moment for the woman's auxiliaries to be real auxiliaries to the medical societies by promoting these radio talks. This would also seem an ideal occasion to say a few good words for "Hygiea," that fine magazine published by the American Medical Association for the lay public.

Respectfully submitted by Mrs. John Z. Mraz, Editor.

DOCTOR ARTHUR L. GREGORY

Doctor A. L. Gregory, pioneer physician of Muskogee, died October 22nd at the age of 55 years, after an illness of several weeks. Dr. Gregory was born in Philadelphia in 1877, where he received his degree from the Jefferson Medical College in Philadelphia, in 1901, after first graduating from the University of Pennsylvania. He came west to St. Louis shortly after receiving his degree, where he attended Washington College, doing post graduate work in surgery for one year. In 1902 Dr. Gregory moved to Muskogee, where he immediately became associated with the M. O. & G. Hospital, acting as assistant surgeon to Dr. Wm. T. Tilly, chief of the staff. Dr. Gregory also took an active part in the founding of the old P. and S. Hospital and served as chief surgeon of its staff. He was also a member of the staffs of both the Baptist and General hospitals since their founding.

Dr. Gregory is survided by his widow, a son and two daughters.

He was a member of both the Elk and Masonic fraternal orders.

Burial was in Greenhill cemetery.

BRONCHOSCOPY AS AID IN DIAGNOSIS OF OBSCURE PULMONARY DISORDERS

According to Edward A. Looper, Baltimore (Journal A. M. A., Oct. 31, 1931), the practical use of bronchoscopy as an aid to the diagnosis and treatment of diseases of the chest is increasing in favor. In many cases a final diagnosis can be made only through the help of endoscopy after all other means of investigation have failed. A well equipped central clinic unquestionably affords the best opportunity for the study of such cases, but for various reasons many deserving patients never reach such a clinic. It is apparent, therefore, that there is a fertile field for investigation for the bronchoscopist in hospitals for the treatment of pulmonary diseases. The author earnestly hopes that the time will soon come when the management of all hospitals for the treatment of tuberculosis will insist on the establishment of a bronchoscopic clinic as an important department in such institutions.

TREATMENT OF CANCER OF LIP BY ELECTROCOAGULATION AND IRRADIATION

George E. Pfahler and Jacob H. Vastine, Philadelphia (Journal A. M. A., Jan. 2, 1932), emphasize the fact that in cancer of the lip the technic and plan of treatment should always be adapted to the individual case, because cancer does not develop according to rule and cannot be treated by any fixed rule. The aim should be to treat all cases in the very early stages in which the local lesion is small and devoid of palpable lymph nodes. One should always use bimanual palpation with one finger in the mouth and one outside in order to detect eary lymph nodes. In such early cases it is the authors' custom to use a fine needle with the high frequency current and surround the lesion with a line of local destruction, then remove a specimen for microscopic record, and then destroy the local disease completely. If the disease extends deep enough to reach an artery in an elderly patient with arteriosclerosis, it is their custom now to use a suture ligature instead of simply sealing the area with the high frequency current, so as to avoid a secondary hemorrhage. When lesions are relatively small, this destruction and subsequent roentgen treatment leaves a soft scar and practically no deformity. They then give an 80 per cent dose of high voltage x-rays with 200 kilovolts and 0.5 cm. filter over the lip and chin, and on the following day a similar dose in the submental and the submaxillary regions; within a week they bring this up to a full erythema dose according to the "saturation" (Pfahler) technic. In the more advanced cases, with local disease of large extent, but still with no palpable lymph nodes, they carry out the same general plan; but if there is likely to be much deformity they try to eliminate the local disease by surface interstitial irradiation with radium, using dental compound or more commonly using the lead clamp method first described by Grier. In the more advanced cases, with local disease without palpable lymph nodes, they increase also the roentgen treatment in the aforementioned fields and add treatment from behind foreward under the angle of the jaw, giving a total of from 200 to 300 per cent of an erythema dose over each field, but never exceeding the "saturation" value. When dealing with primary cases associated with palpable lymph nodes, they usually add radium packs over the lymphatics and at times insert radium needles into the lymph nodes and around the lymphatics likely to be involved. In no instances do they depend on interstitial irradiation alone for either the local or the lymphatic treatment. When radium is not available and electrocoagulation is inadvisable, good results may be obtained by intensive and skillful local roentgen treatment. The combinations described have been more satisfactory than roentgen treatment alone.

ABSTRACTS • REVIEWS • COMMENTS AND CORRESPONDENCE

SURGERY AND GYNECOLOGY

Abstracts, Reviews and Comments from LeRoy Long Clinic
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Gangrene of the Finger Following Digital Nerve Block Anesthesia. John H. Garlock. Annals of Surgery, Volume XCIV, December, 1931.

The practice of operating on the distal half of the finger with the aid of digital nerve block anesthesia is almost universal. All textbooks speak of the ease with which it may be done. The procedure is probably executed daily hundreds of times the world over.

The author, however, has seen four cases of gangrene of the finger following this procedure within the past two years, showing that the procedure is not without danger and presents serious drawbacks as it is ordinarily carried out. These cases developed a dry gangrene of the finger distal to the point of injection of the Novocain necessitating amputation. He believes that there is a real lesson to be learned from these four cases and states that it is distinctly hazardous to use a tourniquet of narrow caliber because the local tissue injury is more centralized. A broad application is safer. For the usual incision and drainage it is unnecessary to occlude the arterial supply by tightening the tourniquet as far as it can be pulled. The purpose of the tourniquet is to prevent rapid absorption of the anesthetic agent and not to obtain a bloodless field. If a bloodless field is necessary as when looking for foreign bodies, a properly applied Esmarch bandage is more effective and certainly safer. He believes that if these facts are remembered and the necessary precautions taken that gangrene should never occur.

—LeRoy Downing Long.

The Effects of Spinal Anesthesia on the Spinal Cord and It's Membranes—An Experimental Study, by Loyal Davis, M.D., Hoke Haven, M.D., J. H. Givens, M.D., and John Emmett, M,D., Chicago. Journal American Medical Association, December 12, 1931.

The authors injected spinal anesthetic solutions in common use into the subarachnoid space in lumbosacral region of 37 dogs, examining entire spinal cord and meninges 3 days, 7 days, 30 days and 90 days later.

Five dogs died within 24 hours, after apparently having recovered from the paralysis of hind legs.

In all other cases there was an inflammatory reaction in leptomeninges, with fibrotic scarring in the dogs killed after 30 and 90 days, this being less pronounced in dorsal and cervical regions.

In the cord there were swelling and oedma of cells, fragmentation of axis cylinders and degeneration of fiber tracts.

Sections of sound spinal cord taken from other dogs underwent lytic changes after 18 hours incubation in dilutions from 1:10 to 1:200 parts of anesthetic solution in physiologic solution of sodium chloride. Human blood corpuscles incubated in like solutions at body temperature underwent hemolysis in 1½ hours.

The authors conclude that spinal anesthetic solutions in common use (procaine base) are hemolytic and myelolytic; that they cause inflammation of the leptomeninges, retrograde degeneration of ganglion cells, swelling and fragmentation of axis cylinders, and degenerative changes in the fiber tracts of the cord.

Comment. Clinically, it appears that there are certain situations in which spinal anesthesia is desirable; but if the above findings are correct the surgeon will have to take the responsibility of deciding whether the clinical advantages outweigh in importance the permanent damage of meninges and cord.

It would be of interest and importance to learn whether the myelolytic changes sometimes reach the medulla. If so, there would be a good explanation of the high mortality—about 1:500—within the first 36 hours.

——LeRoy Long.

Interparietal Hernias. William E. Lower and Fred N. Hicken. Annals of Surgery, Volume XCIV, No. 6, December, 1931.

The term interparietal hernia is used by the authors to distinguish a group of rather unusual hernias which are located in the inguinal region between the various layers of the abdominal wall. They are classified anatomically as follows:

1. Properitoneal hernia includes all of those cases in which the hernial sac lies between the peritoneum and the transversalis fascia.

2. Interstitial hernia where the sac lies between the transversalis fascia and muscle, between the transversalis and internal oblique muscles or between the two oblique muscles.

3. Superficial hernia in which the sac lies between the skin and the aponeurosis of the external oblique muscle.

In interparietal hernia the sac may be monolocular or multilocular. The latter being the form present in the majority of cases.

As most interparietal hernias are either incarcerated or strangulated when seen immediate operative intervention is indicated. When symptoms of intestinal obstruction occur following an operation for inguinal or femoral hernia, an incarcerated properitoneal hernia should be suspected and immediate operative intervention instituted. When operating for hernia careful exposure of the entire inguinal canal should always be made

in order to prevent overlooking an intermuscular sac. When operating on an interparietal hernia the surgeon must remember that the strangulation may be at the internal ring, the neck of the interstitial deverticulum or sac, or the external ring. The abdomen never should be closed until the site of the obstruction has been found. As a rule careful exploration will reveal the incarcerated bowel in a diverticulum.

In an operation for interparietal hernia it is probably best to use the combined abdominal—inguinal route since this prevents injury to the bowel because the site of obstruction is more clearly revealed than when the inguinal approach is used.

It has been generally believed that interparietal hernias are of rather rare occurrence, but this belief is probably incorrect since the authors are able to report 587 cases from the literature. Good surgeons have been known to fail in the diagnosis of this type of hernia at the operating table. The inability to diagnose this condition preoperatively and the consequent high mortality rate indicate how superficial is our knowledge of this type of hernia.

—LeRoy Downing Long.

UROLOGY and SYPHILOLOGY

Edited by Rex Bolend, B.S., M.D
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CLIPPINGS FROM THE UROLOGIC AND CUTANEOUS REVIEW

Sterile Pyuria. Fisch discusses (Journal D'-Urologie, August, 1931), all those cases where the urine presents pus with an entire absence of demonstrable bacteria. In such cases we are prone to assume that tuberculosis is the most probable underlying cause. Fisch is inclined to believe that in many such cases there is no tuberculosis present. There is perhaps a hidden focus of infection somewhere in the urinary tract and if the urine were examined daily the probability is that a bacterium of some sort, and in a great majority of cases a bacterium of the colon group would be discovered.

He states that infections of the kidney are sometimes accomplished slowly, and that there is a period of kidney irritation which precedes the actual accomplishment of infection. In this irritative period we may find an excess of precipitated salts, along with desquamated epithelium and leucocytes. This irritation may be caused by chemical substances or by bacterial toxins, but in any case it prepares the soil for the ultimate reception of the colon bacillus.

Cases of persistent pyuria, therefore, even though aseptic must be interpreted as indicating a phase at least, perhaps a paramicrobic phase of microbic invasion and the idea of a true aseptic pyuria should hardly be accepted in any case.

Bilateral Renal Calculosis. P. Cifuentes states (El Siglo Medico, August 29, 1931), that while the occurrence of bilateral renal calculi has been estimated at about 15 per cent, this proportion of bilaterality is, in fact, as high as 30 or 40 per cent. In many cases of bilateral calculi the problem to solve is very great. Both sides may show large calculi or one may be large while the other is small: or they may be small on both sides; or there may be a renal calculus on one side and a ureteral calculus on the other. Apart from this the condition of the kidneys, their function and the question of sepsis, influence the character of the affection. As a rule, the larger the stone the greater the parenchymal involvement and disturbance of renal function and the likelihood of infection. And yet cases are observed where with a very small calculi the changes that have occurred are greater than in others with large calculi. Why this difference in effect? It depends a great deal upon the question of urinary obstruction. A small stone producing obstruction to urinary excretion will compromise the kidney more rapidly than a large stone which is not obstructive.

Enlargement of the prostate was at one time held to be a natural consequence of old age. In 1840, Sir Benjamin Brodie wrote: "When the hair becomes gray and scant; when specks of earthly matter begin to be deposited in the tunics of the arteries; and when a white zone is formed at the margin of the cornea, at the same period the prostate gland usually—I might, perhaps, say invariably—becomes increased in size."

Perhaps the first direct attempt to incise the prostate without an open operation was made in 1815, at the battle of Waterloo, when Guthrie, a surgeon serving with the British forces, was consulted by a man suffering with an obvious obstruction at the neck of the bladder. Guthrie devised an instrument for cutting through the offending mass, later a few ingenious French surgeons took up this idea and invented numerous mechanical devices for biting away a portion of the prostate, but their results were unsatisfactory, and the method fell into disrepute.

Suprapubic cystotomy was first introduced into surgery by Pierre Franco in 1561, and then dropped out of sight for a hundred years until it was revived by Mercier in 1635. Again it disappeared from practice until 1723, when Douglas of London performed the operation in four cases successfully, and in 1727, Cheselden operated six times with one death. At this time suprapubic cystotomy was superseded by the perineal operation, and again had one hundred years' sleep until 1879, when under the auspices of Garsen and Peterson, it came to the fore again.

PROSTATE IN FOCAL INFECTION

At last the profession seems to be appreciating the importance of the prostate as a focus of infection in general disturbances of the body due to infection. Recently the author was asked to present this subject before an orthopedic congregation, it was pointed out that the prostate is as often cause of the disturbance due to focal infection as the teeth or tonsils. Special stress was laid upon the manner and routine of examining the prostate. First, repeated examination with stimulation by hot sitz baths. Second, many times nothing shows on routine microscopic and on culture of rich agar a profuse growth will be obtained.

TUBERCULOSIS

Edited By
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A Study of Tuberculosis in one Junior High School in Honolulu. S. E. Doolittle. The American Review of Tuberculosis. November, 1931.

The application of the tuberculosis school survey method to a community of complex racial groups will yield valuable epidemiological information. The percentage of tuberculous infection in Honolulu is not notably higher than in urban communities on the mainland in spite of a somewhat higher mortality rate. Of 1,437 students tested (aged 11 to 18 years) 75.57 percent had positive tuberculin reactions. Males showed a higher incidence of infection than females but adult pulmonary tuberculosis was more frequent among females and the percentage of demonstrable X-ray lesions was practically the same in both sexes. Infection was more frequent in the older age-groups. The average age of the group was 14.

The study of infection in relation to race shows, when the numbers are sufficient for any comparison, high rates of infection among the Chinese and low rates among the Portuguese, with the Japanese and part-Hawaiians falling between. There is some suggestion of correlation between death-rates and percentage of infection but the same findings do not apply in the Chest Clinic, where two-thirds of the cases are definite "contacts" and it is thot probable that the percentage of infection in different racial groups having varying death-rates is affected only as the opportunity of intimate contact, largely in the home, is increased.

The application of various methods, as history taking, classroom observation by the teacher, notation of absent periods because of illness, weighing and measuring or temperature taking for the selection of cases for special examination will miss a large number of cases with demonstrable, potentially dangerous and even active disease. This study demonstrates that: (1) altho the history of home contact is difficult to obtain, incomplete and unsatisfactory, the group having positive histories showed 10 times as many positive as negative reactions. (2) The statement "whether well or not" as related by both pupil and teacher, showed little correlation either with tuberculous infection or demonstrable X-ray lesions, even of the adult pulmonary type. (3) Infection, as evidenced by positive skin tests, did not affect the periods of absence from school because of illness. (4) Neither infection nor demonstrable lung or lymph-node changes affected the percentage of children 10 percent or more underweight. (5) The relative weight gain showed the greatest alteration in the group with adult pulmonary disease and a barely preceptible variation where there were demonstrable latent childhood lesions or tuberculous infections. (6) Temperature records do not show appreciable differences.

The routine use of the intracutaneous test with at least 0.1 mgm. dosage of tuberculin and X-ray examination of all positive reactors will reveal many cases not only of latent childhood lesions but of adult pulmonary lesions in a preclinical stage since the demonstrable X-ray lesions occurred almost entirely in those reacting positively to tuberculin. Of this group 1.2 percent showed adult pulmonary tuberculosis and 18.8 percent showed demonstrable lesions. Lesions were most frequent among reactors to dosages of 0.1 mgm. or less.

Racial Susceptibility to Tuberculosis. Emil Bogen. The American Review of Tuberculosis. November, 1931.

This study was made in Olive View, California, on 4,730 patients consisting of about one-half native born Americans; one-fourth Mexicans; 5 percent each of English, Irish, and Germans; 4 percent each of Italians. Negroes and Scandinavians and 2 percent each of Orientals, Slavs and Jews with a small number of other nationalities and unknowns. The author concludes that the greatest discrepancy between the death rates from tuberculosis in patients of different nationalities, in his institution, at least, arises from the fact that some groups are admitted early in the disease, and others late and bears little relationship to any innate differences in their reaction to infection after it has reached a certain stage. He does not imply that there are not great differences in the extent of tuberculosis among the different groups in the community, nor that the mortality rates among these groups do not vary widely as it was this observation which prompted the study. He does maintain however, that these differences tend to disappear if the subjects are taken in the same stage of the disease and subjected to similar tratment. The importance of early diagnosis and treatment is again emphasized from this study. Those groups who are more accessible to public-health propaganda, more concerned about their health and more accustomed to consulting their physicians and public-health agencies, are more apt to come in early which in itself tends to cut down the exposure of their families and friends. This is evidently a matter of environment and education, rather than of innate genetic factors. "If these findings be generally confirmed, efforts against the environmental factors in the spread of tuberculosis may continue without fear of the hypothetical biological phenomena of racial and individual inherited susceptibility to the disease which have been conjured up to condemn such activities and justify neglect."

Koumiss in the Dietetic Treatment of Pulmonary Tuberculosis. Charles L. Rubenstein. The American Review of Tuberculosis. November, 1931.

Koumiss—a fermentation product of mare's milk making a pleasant tasting and easily digested food beverage—has long been used with marked success in the dietetic treatment of pulmonary tuberculosis in Western Europe and parts of Asia. It is recommended for its ideal balancing of albumin, fats, carbohydrates and mineral salts, which, with its quick assimilation by the body, make it preferable to other dietetic methods of treatment. The nature of koumiss treatment resembles "irritation therapy" closely as it is apt to produce unfavorable reactions in large doses. In therapeutic doses it increases the immunobiological properties of the organism. It also has diuretic and sedative properties, im-

proves the general blood picture and the sputum becomes more fluid under its influence, thus making expectoration easier. Since it often causes characteristic reactions consisting of fever, hemoptysis and aggravation of the lung condition when taken in over-doses before tolerance is established, a careful selection of cases, exact dosages and continuous observation of the patient are necessary when the treatment is given. In the opinion of the author the high, dry regions such as Arizona, New Mexico, West Texas and Southern California offer favorable locations for the establishment of koumiss sanatoria.

Tuberculous Infection Among School Children in a Rural Area in New York State. John H. Korns. The American Review of Tuberculosis. November, 1931.

A study of the epidemiology of tuberculosis in a rural section of Cattaraugus County, New York, consisting of a careful tuberculin survey of apparently healthy school children showed an extremely low incidence of tuberculous infection among them since of the 1,103 children between the ages of 5 and 19 years who were tested, only 112 or 10.2 percent reacted positively. The infection rate in 13 villages was 12.6 percent as contrasted with 6.6 percent on the farms. The rate among those who have lived since birth within the country was 7.6 percent, while among those who have resided part of their lives outside the country, the rate was 21.1 percent.

Tuberculosis in Adolescents. Margaret Witter Barnard, I. Burns Amberson, Jr., and Marion Franklin Loew. The American Review of Tuberculosis. May, 1931.

Since tuberculous infection is widespread among children in cities it becomes necessary to learn how best to distinguish, among the infected children, those whose infection has already progressed to active disease, or may do so in the near future, in order to ensure for them adequate preventive or curative care. Because of the high cost of an intensive study of all children it is important to find some method of selecting from the general child population a smaller group which will include all infected children so that they may be intensively studied to determine the significance of their infections. While almost any factor relevant to tuberculosis might be chosen to act as a selective agent, serving as a "screen" to catch and hold in one group those children needing further study, it has been found from this study that many of the generally accepted factors are valueless for this purpose.

The following factors were considered as possible screens in this project: (1) General group characteristics—found to give no reliable clue as to the prevalence of infection since infected and non-infected children were evenly distributed thru-out the various groups; it was also found that economic and social status gave no clues for the same reason. (2) General health conditions—it was found impossible to predict in any way which children would be shown to have a tuberculous infection from a very thoro pediatric examination. (3) Weight—cheap and easy to apply but untrustworthy as only 12.2 percent of those infected and only 9.8 percent of those with lesions were 10 percent or more underweight. (4) History of household contact with tuberculosis—while the incidence of infection is greater among children in contact with tuberculosis, this fails as an effective screen, first because of the difficulty of obtaining accurate information and second because in a large city tuberculosis infection is so widespread that household contact is only one of the many sources of infection to which children are exposed and if this only were used a large group in whom infection occurs outside the home would be ignored. (5) Tuberculin test—comparatively easy and inexpensive to apply and serves effectively to divide the children into two large groups, one those having some tuberculous infection and needing further study, the other those having no infection or having completely healed infections. The only limitation in the use of this screen is the difficulty of obtaining parental consent to giving the test. (6) X-ray—has the advantage that there is rarely any parental objection to it. It is expensive however and gives only limited information, for while it would separate out all those having demonstrable pulmonary and tracheobronchial lesions, in the absence of any other test it would be very difficult to differentiate the non-tuberculous lesions. It would also be difficult to tell from the X-ray alone in which clinical class the case should be placed; it also gives no information about the camparatively large group of children with tuberculous infection who are in need of care even tho the lesion is in such a position or of such pathological constitution that it cannot be seen on a film. In this study the 184 children with lesions would have been found but the other 500 who were also infected would have been missed. It is therefore concluded that to study thoroughly the incidence of tuberculous infection and disease in a group it is necessary to (1) test the entire group with tuberculin; (2) X-ray the positive reactors; (3) give a complete pediatric examination to all positive reactors; (4) decide on the best future care of positive reactors after a thorough study of the tuberculosis findings, general health conditions and amount of exposure to the disease.

Since the ultimate aim of this study was to help to group the children so that they might receive necessary and appropriate care for their tuberculosis and at the same time enjoy as much as possible the normal life and development of a child utmost care was exercised to obtain such treatment for each individual so that in curing the tuberculosis the child might not be ruined. It was usually found best to keep the child at home under careful clinic supervision and additional food and rest, educating his family at the same time to consider his condition a problem with which they must deal over a period of several years, rather than to send him to a sanatorium for a few months only to return him to the original family and school conditions where he soon lost all he gained at the sanatorium.

One thousand New York City public and parochial school children were studied in this project. It was found that of this group 673 or 67.3 per cent gave positive reactions to the intracutaneous tuberculin test. Further study divided them into the following groups for super vision: (1) 205 cases for prophylactic treatment such as may be obtained in open-air schools, preventoria or summer camps. This group includes cases with small pulmonary or tracheobronchial lesions that are becoming calcified, suspects, posi-

tive reactors with negative X-rays who were in poor general condition and those apparently in good health but who were subjected to heavy exposure. (1) Fifteen cases of manifest disease needing sanatorium care or its equivalent. (3) Seventy-one apparently healed reactors with well calcified or fibrosed lesions. Of these group 1 is considered the most important since it includes those children for whom the balance has not yet swung which will determine whether they go ahead to the safety of group 3 or slip back into the dangers of group 2.

The community must provide the necessary observation and care before an investigation such as this can best serve its purpose—prevention of clinical disease in later years. A school similar to Lymanhurst in Minneapolis would ensure medical supervision, rest, food and a school program fitted to the individual's physical and mental capacity. If the child improved he could eventually be returned to his regular classes, if he failed to do well it would be detected at once and proper care arranged.

A Study of the Position of Primary Cavities in Pulmonary Tuberculosis. Henry C. Sweany, Carol E. Cook and Roy Kegerreis. The American Review of Tuberculosis. November, 1931.

Feeling that the idea of a small "incipient" lesion progressing slowly toward the base was erroneous and that most reinfections are of an acute nature, also that it is not at all certain that they come from the apical lesions the authors undertook this study in an effort to understand and explain something of the chain of events in the progress of the disease. The process of reinfection is predominately of an acute nature and whether it begins from the old apical lesions; from re-activated primary complexes; from a tuberculous bronchitis; from a haematogenous spread; from a ruptured lymph node or from the aerogenous route will not alter their principles.

They studied 268 cavities in 204 patients by means of stereoscopic X-ray, with respect to location and size. About 98 per cent of the early cavities seem to be situated on bronchi that are directed rather sharply posteriorly. Most of them are situated 1.5 to 3 cm. beneath the pleura corresponding to the 4th and 5th order of bronchi and consequently nearly all are "infraclavicular." Their distribution on the right and left sides appears to be directly proportional to the lung volume of the respective sides. Their position seems to indicate a common mechanical factor of origin and to suggest a bronchogenic origin resulting from a lack of clearing facilities of the particular bronchi or some similar mechanical principles.

A significant fact is that this group of patients represents a cross-section of early tuberculous re-infection in adults, representing average reinfections in patients who were fortunate enough to present some objective symptoms during relatively benign early stage before advanced spread resulted. The younger the patients the greater the mortality—there were also more fatalities when the reinfection involved many bronchi—but most of these patients improved on regular sanatorium routine. While a final analysis cannot be made for several years there is no reason to suspect any difference from the results with most moderately advanced tuberculosis patients.

Pleural Shock. C. H. Cocke. The American Review of Tuberculosis. November, 1931.

While the author has entered the pleural cavity about 5000 times in the past 17 years chiefly in pneumothorax work, having encountered pleural shock in 3 cases he points out the necessity for care in intrapleural exploration. Since, the infrequent, plural shock is severe and terrifying when it does occur, frequently being permanently damaging or immediately fatal, he deplores the assumption that these commonplace procedures are too easy and simple even to cause alarm or to need any special precaution .

Tuberculosis—A Family Disease. J. A. Myers, M.D., Ph. D. Journal of the Outdoor Life. October, 1930.

Tuberculous infection always precedes tuberculous disease. Therefore, by the tuberculin test we can detect the infected members of the family and often protect them against the disease. If exposure continues and the proper care is not given to the infected members, we may see the disease appear in one member of the family after another. In fact whole families may die out because contact is allowed to continue.

The most hopeful phase of tuberculosis prevention at present lies in the study of the contacts of detected cases. In the city of Minneapolis during the months of January, February and March, 1930, the Health Department brought to light 50 unsuspected cases of tuberculosis thru such follow-up studies. Since the incidence of tuberculous infection has so decreased in the United States, we are fast approaching the time when it will be possible to study all close contacts of tuberculous patients. When the time comes when we study our tuberculosis cases and their contacts as we now do a case of typhoid fever, tuberculosis will decrease faster than it does at present. When a case of typhoid fever is reported the health authorities search for and usually fiind the source of infection which is then brought under control thus controlliing the spread of the disease. The fact that tuberculosis is a germ disease just as is typhoid fever and is just as contagious has not been generally recognized, perhaps because of the long interval frequently lapsing between infection and manifest disease.

BOOK REVIEWS

The Practice of Medicine. By A. A. Stevens, A.M., M.D., Professor of Applied Therapeutics in the University of Pennsylvania; Visiting Physician to Philadelphia General and University Hospitals; Consulting Physician to St. Agnes' Hospital, Philadelphia. Third Edition. Entirely Reset. 1150 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1931. Cloth, $8.00 net.

A most excellent book for quick reference, as the author has assimilated the work in the best of form. All the facts of present day knowledge of the subjects are given in the simplest terms. A short concise review of the pathology along with a full diagnosis and treatment is given in

each subject. This will be highly appreciated both by practitioner and student.

The American Illustrated Medical Dictionary. A Complete Dictionary of the Terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Nursing, Veterinary Science, Biology, Medical Biography, etc. With the Pronunciation, Derivation, and Definition, by W. A. Newman Dorland, A.M., M.D., F.A.C.S., Lieut.-Colonel, M.R.C., U. S. Army; member of the committe on Nomenclature and classification of diseases of the American Medical Association: Editor of "American Pocket Medical Dictionary." Fifteenth Edition, Revised and Enlarged, with the Collaboration of E. C. I. Miller, M.D., Professor of Bacteriology and Biochemistry, Medical College of Virginia. W. B. Saunders Company, Philadelphia and London, 1931.

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TUBERCULOSIS OF THE JEJUNUM

Franklin W. White and I. R. Jankelson, Boston (Journal A. M. A., Jan. 2, 1932), believe that local tuberculosis of the jejunum (without tuberculosis elsewhere in the bowel) as in two cases reported by them, is rare. They have found in the literature only a few autopsy reports. Involvement of the jejunum as part of a general intestinal tuberculosis is not at all uncommon. The two cases reported show some unusual features, such as the formation of chronic tuberculous hyperplasia in the small intestine, the presence of a sigule lesion and a single stricture in the jejunum. Tuberculosis is one of the common causes of chronic jejunal obstruction. The diagnosis of focal tuberculosis in the jejunum alone is very difficult unless obstruction occurs, since the early symptoms are mild and vague. The greatest difficulty is found in deciding the cause of a jejunal obstruction, whether due to tuberculosis, cancer or adhesions. The roentgen examination is very important. Several details are emphasized: the use of "scout" or plain films of the abdomen; the repeated study of the small intestine pattern in the first six hours after a barium meal, since evidence of partial obstruction is apt to be transitory. The treatment of tuberculous obstruction of the jejunum is surgical by choice and medical only by necessity. One of the cases reported illustrates the good results of operation in removing a single tuberculous focus in the jejunum when the infection in the lung was arrested.

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